

AN ALTERNATIVE TO VACCINES? NOSODES AND
THEIR EFFECT ON VACCINE DEBATES IN ENGLISH CANADA

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Abstract

In the 1980s, vaccine hesitance created a market for vaccine alternatives in Canada. Challenges to medical authority, especially from feminists and environmentalists, meant that parents' fears of vaccine damage were taken more seriously than might otherwise have been the case. These challenges helped to create a market for vaccine alternatives, resulting in the revival of homeopathic vaccines, also known as nosodes in 1985, in English Canada. I argue that nosodes were not immediately accepted by the Canadian homeopathic community. Rather, it took a significant marketing and research campaign by the French homeopathic company, Boiron, for Canadian homeopaths to consider nosodes to be a legitimate homeopathic therapy. I argue that the Boiron-sponsored research, which showed nosodes to be side-effect free and effective, had significant flaws and mainly acted as a marketing tool to present nosodes in a positive light to skeptical homeopaths. I consider the ways in which Boiron used its financial resources to shape the research and education available to Canadian homeopaths. Following their campaign, supporters of nosodes reimagined the risks and benefits of vaccination by comparing vaccines to supposedly risk-free nosodes. I argue that nosodes allowed for a reworking of anti-vaccine discourse, fundamentally altering what had been framed as a choice between the risks of vaccination and the risks of vaccine preventable disease. Despite evidence of their efficacy being flawed, advocates presented nosodes as an alternative to vaccines and a middle ground between anti-vaccination and vaccination. While a campaign from 2013-2015 tried to expose nosodes as ineffective, I argue that the campaign was unsuccessful, but raised Canadians' awareness of nosodes, further complicating the history of vaccines and alternative medicine in Canada.

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Table of Contents

Permission to Use.....	i
Abstract	ii
Acknowledgements	iii
Table of Contents	iv
Preface	1
Introduction	4
Chapter One: Homeopathy, Anti-vaccination, and Nosodes	15
Chapter Two: Commercial Homeopathy in Canada: Remaking Homeopathy, Reviving Nosodes ..	42
Chapter Three: The Perfect Vaccine, Nosodes in the Media	61
Conclusion	90
Appendix: Figures	94
Bibliography	98

Preface

When I started writing this thesis, the Covid-19 pandemic had not yet swept the globe. Now, however, it puts emphasis on the importance of vaccine programs. Creating a Covid-19 vaccine may be difficult, but convincing enough people to vaccinate so that we can reach herd immunity could prove a stumbling block as well. Herd immunity refers to the crucial threshold where a single case of a disease cannot find enough susceptible bodies in which to replicate. Under herd immunity, a person with the disease will encounter very few people who are vulnerable to the disease. Eventually, those affected will recover before they can infect others. While vaccines can help us get there, it remains up to governments to create a robust vaccination program and up to individuals to ensure they are vaccinated. As efforts to social distance during the Covid pandemic are enforced with fines and other penalties, governments and the public should revisit the ways we enforce and manage vaccination.

Some obstacles to vaccination programs are anti-vaccine, vaccine hesitant, and vaccine noncompliant populations. In brief, **anti-vaccine** refers to people who refuse all vaccinations. The **vaccine hesitant** population questions vaccines but may or may not decide to vaccinate. They may also pick and choose several vaccines that they or their children receive while avoiding others. Those who miss their vaccinations whether due to anti-vaccine beliefs or vaccine hesitancy are collectively called **vaccine noncompliant**.

My thesis focuses on **nosodes**, sometimes known as homeopathic vaccines and how they have historically fit into discussions about vaccine compliance. Created through homeopathic methods, nosodes are prepared from diseased products of human, animal or vegetable origin, or cultures of micro-organisms. Vaccine and nosodes are similar in many ways. In fact, homeopaths often refer to nosodes as the homeopathic vaccine. Vaccines contain small amounts of viral or

bacterial material that has either been killed or weakened to provide immunity from disease.¹

Nosodes, on the other hand start off by including live infectious material. However, this material is then diluted to the point that it plausibly contains none of the actual virus or bacteria.

Homeopaths claim that this diluted solution can provide immunity in a similar manner to vaccines, while epidemiologists argue that nosodes contain no active agent, and are useless for triggering an immune response. Usually, a nosode is administered in the form of a sugar pill taken under the tongue.²

I make the case that nosodes have been presented in ways that are designed to tip the vaccine hesitant into the category of the vaccine non-compliant by giving a false sense of security. In the case of Covid-19, missed vaccinations have the potential to prolong the length and pain of the pandemic.

It is probably clear by this point that I do not find the evidence presented for nosodes to be compelling. While I have endeavoured to keep my own thoughts to a minimum throughout the body of this work I am personally extremely opposed to the use and sale of nosodes in Canada. The evidence in favour of nosodes is based more on faith, and homeopathic traditions, but does not meet scientific standards. And yet, the best historical work on alternative medicine that I have read considers not *whether* these interventions worked, but *why* they worked -- it is important that we understand why nosodes ‘worked’ for these parents, or why some parents considered them an effective substitute over vaccines.³ One of the reasons parents chose nosodes is the creation of competing statistics and narratives around vaccines. Studies claimed to show

¹ There are a wide variety of ways vaccines can be prepared, including subunits of proteins, or even simply genetic instructions for proteins. All operate on the principal of providing the immune system information to synthesize antibodies.

² Paolo Bellavite, “Immunology and Homeopathy,” *Evidence Based Complementary and Alternative Medicine* 2 (2004): 445

³ Alice Kuzniar’s *The Birth of Homeopathy out of the Spirit of Romanticism* (Toronto: University of Toronto Press, 2017) was the first time I had read about alternative health in this way and it has influenced my approach to this topic immensely.

nosodes worked and had no side effects, claims that changed the way parents interpreted the risks of vaccine, vaccine preventable diseases and nosodes.

For the purposes of this thesis **risk** is used in a statistical sense, the probability that an action will lead to a detrimental outcome. However, understandings of these probabilities are influenced by the media and the way statistics are presented in published studies. While the field of risk communication has primarily focused on how government actors and mainstream media shape the decisions of citizens, the story of nosodes helps to complicate these ideas. By looking at the narratives presented by alternative media, it becomes clear that the probabilities that go into calculations of risk are personal and variable. Different sources present and omit different statistics and people interpret these messages idiosyncratically.

Canadian alternative health magazines represent a wealth of historical knowledge into how alternative health practices have been communicated. As it stands however, these sources have not been interrogated to their fullest intent. The messages in alternative health magazines are not static, and further research should be done using Magazines like *Vitality* and *Health Naturally* from Toronto, *Alive!* from Vancouver, and *WHOLife* from Saskatchewan. Amid the backdrop of Covid-19, discussions of nosodes are likely to change further, already there have been articles responding to questions about whether a Covid-19 nosode has been created yet.⁴ As of the time of writing, there is no nosode for Corona approved for sale in Canada.

⁴ Sonya MacLeod, "Homeopathy for Coronavirus," *Little Mountain Homeopathy* (April 2, 2020). www.littlemountainhomeopathy.com.

Introduction

Catch measles or receive the measles vaccine. You might think that these are your only options to gain immunity. Since 1998, and Wakefield's retracted study on the MMR vaccine, measles outbreaks have been emblematic of falling rates of vaccination.⁵ Starting in 1985, however, Canadian homeopaths, an alternative medical practice that uses highly diluted cures, and local pharmacies have had another choice sitting on their medicine shelves: nosodes.

Created through homeopathic methods, nosodes are prepared from inactivated diseased products of human, animal or vegetable origin, or cultures of micro-organisms. Vaccine and nosodes are similar in many ways. In fact, homeopaths often refer to nosodes as the homeopathic vaccine. Vaccines contain small amounts of viral or bacterial material that has either been killed or weakened to provide immunity from disease.⁶ Nosodes, on the other hand includes live infectious material. However, this material is then diluted to the point that it plausibly contains none of the actual virus or bacteria. Homeopaths maintain that it can provide immunity in a similar manner to vaccines. Usually, it is administered in the form of a sugar pill taken under the tongue.⁷ This preparation follows the homeopathic principles of 'like cures like' (which vaccines follow) and the principle of infinitesimal dose (which vaccines do not follow).

Canada declared measles eliminated in 1998. Since then, vaccine noncompliance has fostered its return. Measles infected 12 Canadians in 2016 and jumped to 45 cases in 2018 - a

⁵ In fact, even before Wakefield's study, the MMR vaccine was anecdotally implicated in the rising rates of allergies and autism.

⁶ There are a wide variety of ways vaccines can be prepared, including subunits of proteins, or even simply genetic instructions for proteins. All operate on the principal of providing the immune system information to synthesize antibodies.

⁷ Paolo Bellavite, "Immunology and Homeopathy," *Evidence Based Complementary and Alternative Medicine* 2 (2004): 445

fourfold increase.⁸ While this remains a small number in comparison to Canada's population of 35 million, further drops in vaccination rates will only facilitate the rise in preventable disease outbreaks as herd immunity becomes an increasingly distant goal.

Because nosodes contains no trace of the original virus, it cannot provoke side-effects. Anti-vaccine activists mobilize the risk-free nature of nosodes to argue that parents should be allowed to make 'informed choices' between nosodes and vaccines. But there is a risk: those who receive nosodes remain susceptible to infection and threaten herd immunity.

Research suggests that the numbers of anti-vaccine parents, those who refuse all vaccinations, make up a maximum of two percent of the population.⁹ The reason for falling vaccination rates is not wholly due to committed anti-vaccine activists, but rather well-meaning parents who are uneasy about vaccination and its effect on their child, the vaccine hesitant parent.¹⁰ More and more, research focuses on the anti-vaccine parents' worried counterparts. Herd immunity, for the measles virus, requires 95% vaccination, a mere 2% does not threaten it.¹¹ It is clear then, that the arguments which matter most are those that tip an uneasy parent into the territory of rejecting vaccinations or delaying and missing vaccinations. For parents who are anxious about the potential risks of vaccination, nosodes may seem like the perfect tool to protect their child since they are depicted to convey all the benefits of vaccination and none of the risks.

Since the 1980s, anti-vaccine activists have used the risks of vaccination as a rallying cry to argue that parents should be able to choose whether their child undergoes the risks of

⁸ *Measles Surveillance in Canada*, (Ottawa: Public Health Agency, 2018) 4,10.

⁹ Tyler Dawson and Sharon Kirkey, "Who are the Antivaxxers? Here's What we Know and How they Got there in the First Place," *National-Post*, March 27, 2019. www.nationalpost.com.

¹⁰ "Addressing Vaccine Hesitancy," *WHO*. www.who.int. Accessed January 2019.

¹¹ Dawson, "Who are the Antivaxxers."

vaccination.¹² The existence of a risk-free vaccine alternative would seem to be a ripe avenue for historical examination. And yet, no historical scholarship deals with the nosode and its relation to the anti-vaccine movement.¹³ In such a context, the scholarly silence on the nosode is puzzling.

My analysis of nosodes leads to three conclusions:

- 1) Challenges to medical authority from feminism, environmentalism, and risk discourse resulted in parents' fears of vaccine damage to be taken more seriously than might otherwise have been the case, creating a market for vaccine alternatives and resulting in the revival of nosodes in 1985 in English Canada.
- 2) Nosodes were not immediately accepted by the post-revival homeopathic community. It took significant marketing and research efforts by French homeopathic company Boiron for English Canadian homeopaths to consider the use of nosodes to be a part of legitimate homeopathy.
- 3) Nosodes allowed for a retooling of anti-vaccine discourse that emphasized a risk-free alternative to vaccination, fundamentally altering what had been framed as a choice between the risks of vaccination and the risks of vaccine preventable disease.

Nosodes arise out of the homeopathic tradition. In 1784, Samuel Hahnemann, a German doctor, became dissatisfied with the state of medicine. Hahnemann believed that the heroic doses offered by regular medicine were too high.¹⁴ He was also marked by the experience of chewing on Peruvian cinchona bark, which was used to treat malaria. Believing that he should experience

¹² Elena Conis, *Vaccine Nation: America's Changing Relationship with Immunization* (Chicago: University of Chicago Press, 2015).

¹³ It has been mentioned several places as an oddity, see Jennifer Keelan, *The Canadian Anti-vaccination Leagues, 1872–1892*, 2004, 19, 251. Accessed via proquest on January 9th, 2019

¹⁴ Alice A. Kuzniar, *The Birth of Homeopathy out of the Spirit of Romanticism* (Toronto: University of Toronto Press, 2017), 1-5. Regular medicine is the generally accepted term for mainstream medicine at the turn of the century.

the side effects of remedies, Hahnemann decided to chew on the bark while healthy. Soon after he became ill with malaria-like symptoms, leading him to theorize that effective remedies should cause symptoms of the disease that they are used to treat.¹⁵ After this experience, Hahnemann developed three laws of healing. Arising out of his dislike of heroic doses, he proffered two laws---the law of infinitesimal dose, which stipulated that medicines should be highly diluted. and the law of single remedy. The third, arising out of his experience with cinchona bark, was the law of similars, which stipulated that remedies should mimic the symptoms that one was attempting to treat.¹⁶

As regular medicine began to consolidate its grip on institutional power, homeopaths searched for ways to maintain relevance.¹⁷ A portion of homeopathic practitioners, fearing that homeopathy was losing its appeal, lashed out at the most effective tool of the day: vaccination.¹⁸ Constantine Hering, a nineteenth century American homeopathist and Hahnemann's American disciple, felt that attacking vaccination would be fruitless if homeopaths did not develop an alternative.¹⁹ In 1830, drawing inspiration from the smallpox vaccine, which used a dose of the weakened disease to prevent disease, Hering decided to test whether homeopathy could be used to prevent disease. Hering believed that the smallpox vaccine dose was too high. He tested his own diluted disease to use as a prophylactic. Eventually, he became convinced of its efficacy and began to recommend its use. Unfortunately for Hering, nosodes failed to generate enough interest in homeopathy.

¹⁵ Kuzniar, *The Birth of Homeopathy*, 1-5.

¹⁶ Kuzniar, *The Birth of Homeopathy*, 1-5.

¹⁷ Kaufman, "The American Anti Vaccinationists," 467.

¹⁸ Martin Kaufman, "The American Anti Vaccinationists," 478. Anti-vaccination views were not uniformly adopted by homeopaths.

¹⁹ Paolo Bellavite, Anita Conforti, and Valeria Piasere, "Immunology and Homeopathy," in *Evidence Based Complementary and Alternative Medicine* 2 (2004): 445.

Almost a century after he had created nosodes, in 1925, only 40 homeopaths were practicing in Canada, the bulk of them operating within Ontario.²⁰ With their decline, knowledge of homeopathy and nosodes dwindled.²¹ Had homeopathy remained such a weak force, nosodes might never have figured in modern anti-vaccine literature. But by the 1970s homeopathy began a Canadian revival.²² In 1990, homeopathy was a mainstay of alternative medical practices.²³ Even then, a renewed homeopathy did not mean that nosodes had to be revived as well. The post-revival community focused on Hahnemann's work almost exclusively to the exclusion of later figures like Hering and his nosodes.²⁴ Nosodes needed a twentieth-century champion. Boiron, a French homeopathic company from France became that champion. Boiron invested in homeopathic research and education to remake English Canadian homeopathy and exploit the commercial potential of nosodes.²⁵

While historians have not yet carefully studied nosodes, they have examined vaccines or resistance to vaccination. Nosodes open new avenues for exploring vaccine skepticism. My work is informed by existing scholarship, which has examined the links of alternative medicine to the anti-vaccine movement and closely studied a limited set of vaccine technologies. As well, my study builds upon the existing scholarship which poses social and cultural links to the anti-vaccine movement.

²⁰ Charles Godfrey, *Medicine for Ontario* (Belleville: Mika Publishers, 1979), 56.

²¹ Though knowledge of the nosode likely survived in those who carried on the weakened tradition. Erin Steuter, "Contesting the Rule(s) of Medicine: Homeopathy's Battle for Legitimacy," *Journal of Canadian Studies* 37 (2002): 109.

²² JTH Connor, "Homeopathy in Victorian Canada and its Twentieth-Century Resurgence: Professional, Cultural and Therapeutic Perspectives," in Robert Jutte, Guenter B. Risse, and John Woodward, eds., *Culture, Knowledge and Healing: Historical Perspectives of Homeopathic Medicine in Europe and North America* (Sheffield: European Association for the History of Medicine and Health Publications, 1998), 115.

²³ Bentson MacFarland "Complementary and Alternative Medicine Use in Canada and the United States," *American Journal of Public Health* 99 (October 2002): 1616-1618.

²⁴ This story is told in Chapter 1.

²⁵ See Chapter 2.

Scholarly work in the 1960s focused on nineteenth century vaccine resistance in America, highlighting the ways alternative medicine and vaccine resistance have been historically linked. For example, Martin Kaufman analyzed the homeopaths' arguments against vaccination in 1860s America, contending that homeopaths at large opposed vaccination on the basis of dose.²⁶ While his approach to homeopathic thought monolithic, it poses the intriguing question of how alternative practice can generate unique critiques of mainstream medicine. Unfortunately, this question remains unexplored in the study of twentieth and twenty-first anti-vaccination.

On another front, Historian's Jane Smith and William Muraskin's research in the 1990s points to the importance of studying the way specific vaccines can allow for a more complex examination of vaccine resistance. Smith's study on the Polio vaccine, examines an instance, known as the Cutter incident where Polio vaccines were insufficiently inactivated causing polio and panic.²⁷ Muraskin's work on the Hepatitis B vaccine, explores how competition between pharmaceutical companies to undercut each other's Hep B vaccines resulted in lower vaccine trust in developing countries.²⁸ Both historians were able to examine the ways the disease targeted and the historical context around the vaccine influenced the development of vaccine critiques for individual vaccines. My work takes this approach and applies it to alternative technologies examining how the discourse around a specific alternative medical technology, nosodes, shaped the reception of its mainstream counterpart, vaccines.²⁹

²⁶ Martin Kaufman, "The American Anti Vaccinationists and their Arguments," *Bulletin of the History of Medicine* 41 (December 1967): 466.

²⁷ Jane S. Smith, *Patenting the Sun: Polio and the Salk Vaccine* (New York: William Morrow and Company, 1990), 52.

²⁸ William Muraskin, *The War Against Hepatitis B: A History of the International Task Force on Immunization* (Philadelphia: University of Pennsylvania Press, 1995), 202-203.

²⁹ While Wakefield's 1998 Autism study is also important to this conversation, there is less historical analysis due to its recency.

Finally, my approach is informed by work beginning in the 1990s which stressed the importance of social and cultural factors in generating vaccine critiques. Michael Bliss' work on anti-vaccination in francophone Montreal links historical mistreatment of specific groups by medical authorities to their suspicion of medical technology.³⁰ Stuart Blume's work points to a culture of distrust in government as the austerity of the 1970s and 1980s led to dismantled social support systems. As a result, he argues, a minority of disaffected citizens also lost trust in a variety of government projects including vaccination.³¹ Finally, Elena Conis shows that feminist and environmentalist critiques of medicine allowed for a new language with which to form critiques of vaccination focused around the risks to the increasingly important child.³² From this body of historical work, I aim to pay attention to how the revival of nosodes interacted with these existing and shifting cultural forces to change vaccine discourse and to explore how risks were reinterpreted in light of a vaccine alternative.

Because little to no work has been done on the revival of nosodes, my work has three aims which correspond to the three chapters of this thesis: to paint a vivid picture of the environment that created a market for the return of nosodes; to provide a sketch of how commercial homeopathy harnessed this market by exploring the archival material of *Boiron*; and to show, through a media analysis of risk discourse, how nosodes changed vaccine debates since 1998.

To build the context which gave birth to *Borion*'s Canadian expansion, chapter one will use secondary source materials along with a primary analysis of vaccine discourse in the news media to explore the social, economic and medical fault lines of the vaccine debate leading up to

³⁰ Michael Bliss, *Plague: A Story of Smallpox in Montreal* (Toronto: Harpercollins, 1991).

³¹ Elena Conis, *Vaccine Nation: America's Changing Relationship with Immunization* (Chicago: University of Chicago Press, 2015).

³² Stuart Blume, *Immunization: How Vaccines Became Controversial* (London: Reaktion Books, 2017).

1985. In the social sphere, women argued for a place in healthcare decisions, specifically arguing for the medical elite to take women's experience's seriously.³³ For the women who believed their child had been a victim of adverse vaccine events, this new language provided an avenue to critique childhood vaccination. As well, in an era of chemophobia, some environmentalists argued that pharmaceuticals had harms that were being ignored.³⁴ At the same time, increased life expectancy and reduced infant mortality reduced the tolerance for risks to children. While lower risk tolerance pushed mothers towards vaccination in most cases, the anti-vaccine movement warned about the risks of vaccination creating anxiety for mothers. These shifts provided lenses to critique vaccines.

Anti-vaccine activists actively participated in reshaping the way mothers evaluated vaccines and their risks. Since the 1980s they routinely touted the risks of vaccines to argue that parents should choose to reject vaccination. Activists coopted language from feminists and environmentalists, which created a constituency of vaccine skeptics hungry for alternatives to what they saw as a destructive treatment. With a market for vaccine alternatives in place, all it took was an entrepreneur to seize this opportunity to capitalize on these fears.

Using market data, and memos from its corporate archives, Chapter two, then, follows Boiron from 1985 to 1998 to show, at the company level, how it influenced the development and marketing of nosodes. Boiron's efforts focused on changing homeopathic education in English Canada; my research draws upon annual reports from these institutions to track the influence of Boiron on their financial and educational activities. Boiron expended significant resources to

³³ Wendy Kline, *Bodies of Knowledge: Sexuality, Reproduction, and Women's Health in the Second Wave* (Chicago: University of Chicago Press, 2010).

³⁴ Elena Conis, *Vaccine Nation: America's Changing Relationship with Immunization* (Chicago: University of Chicago Press, 2015).

reconstitute homeopathy around more consumer-friendly principles that created a place to nosodes in the 1980s homeopathic community.

Finally, Chapter three explores the impact of nosodes on vaccination debates as expressed in newspapers, medical periodicals, and alternative medicine magazines. I examine how the corporate appropriation and marketing of an alternative vaccination technology, nosodes, has changed vaccine and anti-vaccine discourse since 1998. In the first portion of the chapter, I examine opinion editorials expressing anti-vaccination views in newspapers with national reach, *The Globe and Mail* and the *National-Post*, as well as regional papers including the *Toronto Star*, the *Toronto Sun*, *Le Journal de Montréal* and *The Province*. I also examine these views in alternative health journals, such as *Alive!*, and *Vitality* and *Health Naturally*. These alternative health magazines are published out of Ontario and Vancouver but are circulated countrywide. Analysis of these articles demonstrates that the existing discourse of risk and choice appropriated the risk-free nosode to argue that parents should drop ‘risky’ vaccination in favor of choosing nosodes. They also emphasized the idea that nosodes created a natural herd immunity, an idea which appealed to hesitant parents.

In the second portion of the chapter, I survey the same newspapers to examine the changes in pro-vaccine discourse in relation to nosodes’ effects on anti-vaccine discourse. I examine how pro-vaccine activists struggled to respond to nosodes while remaining within the discourse of risk and choice. Ultimately, while most mainstream voices spoke out against nosodes, they did not explicitly speak to the inefficacy of nosodes or that they posed a risk and left the final interpretation of risks to the reader. In addition, their critique of nosodes remained cautious and writers declined to advocate for an outright ban. Nonetheless, more tentative proposals, including successful pushes to change the labelling of nosodes to explicitly state that

they did not constitute vaccine alternative, became key strategies in the pro-vaccine response to the threat of nosodes.

Chapter three involves an analysis of shifts in the choice and risk discourse of anti- and pro-vaccine materials. My reading of the materials is informed by Jessica Polzer and Elaine Powers's approach in their collection on risk and health. They define risk and choice as key ways to influence the health choices of citizens by shaping some activities as "risky", or "immoral" to "govern through choice."³⁵ The research done by Boiron established statistics which alternative health writers used to construct their arguments as explored in chapter three.

While Polzer and Powers focus on the successful, and sometimes detrimental operation of the power of risk discourse, my study focuses on the appropriation of these tools by anti-vaccine activists. I argue that opponents of vaccination used "risk" and "choice" to create the environment for the nosode's revival, which later allowed for the incorporation of the nosode into existing health discourses. Such efforts actively created competing visions of the risks and rewards of vaccination. The use of risk discourse by vaccine hesitant populations exposes a fragility in the strategy of individualizing health responsibility by constructing behaviours as risky. Governing through choice generally works well enough to encourage compliance, but it is possible for individuals and groups to reinterpret the risks of their behavior. Through a media analysis of alternative health magazines, I examine the ways in which alternatives choices and understandings of risks are generated, an underexplored topic in media and risk studies.

Policymakers and commentators have come to understand that the vaccine hesitant parent, who delays or misses vaccination due to apathy or vague fears, is a far greater risk to

³⁵ Jessica Polzer and Elaine Power, eds, *Neoliberal Governance and Health: Duties, Risks, and Vulnerabilities* (Montreal: MQUP, 2016), 12.

vaccination schemes than the rare virulently anti-vaccine parent.³⁶ The nosode's revival in 1985, and its promise of risk-free vaccination, made the decision to vaccinate even more complicated than it had been previously in English Canada. But before the risks of vaccination could be reinterpreted with the help of nosodes, a market for its revival needed to exist.

³⁶ "Addressing Vaccine Hesitancy," *WHO*. www.who.int, accessed January 2019.

Chapter One:

Homeopathy, Anti-vaccination, and Nosodes

While mass market nosodes have a relatively short history, nosodes themselves have a history dating back to 1830, which is inextricably linked to the history of vaccines. Both in its infancy and more recently, nosodes have found niches as vaccine alternatives in periods of vaccine resistance. While their efficacy is dubious at best, their image in vaccine resistant circles as a safer, less intrusive method of disease prevention has allowed for the birth and rebirth of nosodes in Canada.

In 1796, Dr. Edward Jenner created the first vaccine with *Vaccinia*, or cowpox, which is now recognized as a naturally attenuated strain of smallpox.³⁷ He and others readily recognized that other animals developed reactions that appeared visually similar to smallpox.³⁸ Cowpox caused smallpox-like pustules on the udders of cows. When milkmaids held the udders, they developed pustules on their hands. Jenner noticed that after such events milkmaids did not contract the deadlier smallpox, Jenner theorized that he could use cowpox to protect against the disease.³⁹ Eventually, he synthesized a serum to provoke smallpox immunity. Jenner's vaccine protected against smallpox and is today generally regarded to be the most significant public health victory.⁴⁰

³⁷ Peter Razzell, *Edward Jenner's Cowpox Vaccine: The History of a Medical Myth* (Sussex: Caliban Books, 1977), 8. This idea is still contested, however.

³⁸ Peter Razzell, *Edward Jenner's Cowpox Vaccine: The History of a Medical Myth* (Sussex: Caliban Books, 1977), 1-10.

³⁹ Peter Razzell, *Edward Jenner's Cowpox Vaccine: The History of a Medical Myth* (Sussex: Caliban Books, 1977), 108.

⁴⁰ Ibid.

Right from the start, however, vaccination provoked pushback. Early vaccinations were quite crude and the processes of arm-to-arm vaccination (using the same needles to vaccinate), as well as growing vaccine lymph on humans, meant that risk of contamination with syphilis and other diseases existed.⁴¹ Lack of knowledge for the proper storage of vaccines likewise meant batches sporadically failed to provoke immunity.⁴² At the same time, members of the sanitary movement believed vaccination took resources away from public health efforts to increase sanitation, which they believed would have a much greater effect on the transmission of diseases besides smallpox.⁴³ The sanitary movement regarded vaccines as a way to ignore the sanitation problems of urban spaces.⁴⁴ As result, there was public apprehension from some of the population. The most striking cases of vaccine resistance can be seen in the historical work done on the 1885 smallpox outbreak in Montreal by historian Jennifer Keelan, whose work exposes the problem in the consistency and efficacy of different vaccine batches.⁴⁵ Despite its drawbacks, historians and epidemiologists have concluded that the smallpox vaccine was an effective health intervention. In 1977, the World Health Organization declared that smallpox had been eliminated, the only disease to be eradicated by a vaccine.⁴⁶

Jenner's vaccine represented a huge success for public health. However, vaccination quickly met opposition from a sizable segment of the homeopathic community. While they did not deny the success of vaccines, amid the spectre of contaminated vaccines, they searched for a

⁴¹ Jennifer Keelan, *The Canadian Anti-vaccination Leagues, 1872–1892*, 2004. Accessed via proquest on January 9th, 2019, 20.

⁴² Ibid.

⁴³ MacDougall, *Vaccine Resistance in Canada, 1885-1960*. 139

⁴⁴ Ibid.

⁴⁵ Michael Bliss *Plague: A Story of Smallpox in Montreal* (Toronto: HarperCollins, 1991); and Jennifer Keelan, *The Canadian Anti-vaccination Leagues, 1872–1892*, 2004. Accessed via proquest on January 9th, 2019.

⁴⁶ Steven Riedel, "Edward Jenner and the History of Smallpox and Vaccination," *Baylor University Medical Center Proceedings* (2005): 25.

version of vaccination that followed the homeopathic principles in full.⁴⁷ Herein lies a parallel development in the history of vaccines. In 1830, one of the followers of the father of homeopathy, Samuel Hahnemann, Constantine Hering was searching for a way to increase the appeal of homeopathy. Public opposition to vaccines created a fertile ground for seeking alternative protections against infection diseases. Hering tested a series of what he named nosodes and presented them as a vaccine alternative. He did so using the diluted disease and introduced it to the homeopathic community as a prophylactic against smallpox that followed homeopathic principles.⁴⁸ His introduction of nosodes represented a serious attempt by Hering to improve public health and to bolster homeopathy.⁴⁹ In Canada, nosodes became part of the cosmopolitan homeopathy of the nineteenth century.

Early Homeopathic Culture in Canada

The homeopathic community that used a variety of nosodes in nineteenth-century British North America and later Canada was different than the community that revived them in the late twentieth century. The early period boasted an active research community and a less antagonistic relationship with regular physicians. This environment led to a community that actively sought and generated new research on homeopathic medicine, including homeopathic nosodes.

In the 1800s, Canadian homeopaths were part of a vibrant community that published research on homeopathic medicine in professional homeopathic journals. Canadian homeopaths published case studies, the most common form of homeopathic research, in the *Canadian*

⁴⁷ Martin Kaufman, "The American Anti Vaccinationists and their Arguments," *Bulletin of the History of Medicine* 41 (December 1967): 466.

⁴⁸ Paolo Bellavite, Anita Conforti, and Valeria Piasere, "Immunology and Homeopathy," in *Evidence Based Complementary and Alternative Medicine 2* (2004): 445.

⁴⁹ Paolo Bellavite, Anita Conforti, and Valeria Piasere, "Immunology and Homeopathy," in *Evidence Based Complementary and Alternative Medicine 2* (2004): 445.

Journal of Homeopathy, which started publishing in 1856 in St. Catharines, or the Montreal-based *Homeopathic Record*, which began publishing the same year as the smallpox epidemic, in 1885.⁵⁰ Their reach extended beyond city boundaries with American practitioners subscribing from nearby Boston and Philadelphia, as well as those from places further away, like Vancouver.⁵¹ These journals facilitated the creation of a Canadian homeopathic community and connected Canadian homeopaths to the larger American community.

Through the journals, homeopaths circulated new ideas, theories, and expanded the scope of homeopathic practice. Instead of relying on a few key texts, as they would later do, homeopaths tested remedies, shared the results of their own work, and created new ways of doing homeopathy. Articles facilitated the development of standards of care for common ailments, like toothaches, giving practitioners a step-by-step approach for treating patients.⁵² Writing in 1888, Thomas Nichol, a Montreal-based homeopath, pointed to these journals and the open circulation of ideas as proof that “homeopathy is the very antipodes of quackery ... which dwells in darkness.”⁵³ The journals represented the efforts of a strong homeopathic community which desired to educate practitioners and lay people alike in the newest advances in homeopathic care.

Canadian homeopathic journals facilitated the circulation of information on nosodes. At the turn of the twentieth century, Canadian homeopaths increasingly paid attention to nosodes for

⁵⁰ Fernando Ania, "Homeopathy in Canada: A Synopsis." *Health and Homeopathy* (Fall 1995) Accessed June 4· 2019. As my survey of both indicates a variety of homeopaths from across Canada, including Vancouver, published in these journals, indicating a broader reach of publication. For more information on this event consult, Michael Bliss *Plague: a Story of Smallpox in Montreal* (Toronto: HarperCollins, 1991); and Jennifer Keelan, *The Canadian Anti-vaccination Leagues, 1872–1892*, 2004. Accessed via proquest on January 9th, 2019.

⁵¹ See William Jefferson Guernsey, “Data Wanted,” *Montreal Homeopathic Recorder* (August 1901): 1-2; and Richard Hughes “Homeopathy of Today,” *Homeopathic Messenger* (1901): 68.

⁵² See “Convulsions in Children,” *Montreal Homeopathic Record* (May 1898): 8. And “Toothache,” *Montreal Homeopathic Record* (June 1898): 7.

⁵³ Thomas Nichol, “The Misrepresentation of Homeopathy,” in *Montreal Tracts on Homeopathy* 6 (Montreal: Drysdale & Co., 1888), 122.

smallpox due to lingering fears about tainted batches of smallpox vaccine amid growing use in metropolitan areas.⁵⁴

By reading case studies and mortality statistics, Canadian homeopaths became aware of several alternatives to smallpox vaccination.⁵⁵ After a rise in the use of three smallpox nosodes, *Malandrinum*, *Variolinum*, and *Vaccininum*, a Philadelphia doctor, William Jefferson Guernsey, put out a call for case studies supporting or disproving each nosode in many homeopathic journals across North America, including the August 1901 issue of the *Montreal Homeopathic Recorder*.⁵⁶ In December of 1901, he sent out a compilation of practitioners' reports, which generally agreed that "several repeated doses *Malandrinum*" should be used as a smallpox prophylactic.⁵⁷

Another nosode, *Diphtherinum*, grew in popularity with the introduction of diphtheria anti-toxin in 1892. The anti-toxin was produced by giving horses higher and higher doses of the diphtheria toxin until anti-bodies formed in the bloodstream.⁵⁸ As with smallpox, contamination often occurred in the synthesis of the anti-toxin. In the spring of 1900, after several years warning about the "dangers of the crude antitoxin", several homeopaths compiled the death rate for diphtheria at hospitals that used anti-toxin compared to homeopathic hospitals and

⁵⁴ W. A. Yingling, "Malandrinum and Vaccination," *Montreal Homeopathic Recorder* (March 1900): 4. Heather MacDougall, *Activists and Advocates: Toronto's Health Department, 1883-1983* (Toronto: Dundurn Press; 1990). Jennifer Keelan, *The Canadian Anti-vaccination Leagues, 1872-1892*, 2004. Accessed via proquest on January 9th, 2019.

⁵⁵ For examples of case studies, see: W.A. Yingling, "Malandrinum and Vaccination," *Montreal Homeopathic Recorder* (March 1900): 4. A.L. Marcy "Some Observations on Malandrinum," *Montreal Homeopathic Recorder* (Feb 1900): 9.

⁵⁶ Malandrinum is derived from a disease in horses called Grease, Variolinum is derived from the smallpox virus itself and Vaccininum is derived from Cowpox. William Jefferson Guernsey, "Data Wanted," *Montreal Homeopathic Recorder* (August 1901): 1-2.

⁵⁷ William Jefferson Guernsey, "Some Letters Regarding Vaccination," *Homeopathic Recorder* (December 1901): 544-553.

⁵⁸ *WHO Model Formulary*, (World Health Organization, 2009), 397.

practitioners who used the nosode *Diphtherinum*.⁵⁹ Based on their data, these homeopaths estimated a “13.4 per cent” death rate at regular hospitals compared to a “7.38 per cent” death rate for homeopaths, concluding that the nosode was effective.⁶⁰ The more likely reason for this discrepancy is that the homeopathic hospitals often treated a wealthier, healthier population of upper and middle-class patients who were more resilient than their working class counterparts.⁶¹

The debates about nosodes in homeopathic circles corresponded with growing clashes between the sanitation movement and those in favor of vaccination. In 1901, while homeopaths were searching for the best smallpox nosode, R.S. Weir, secretary of the Toronto Anti-Vaccination League asked readers of the *Toronto Star* “why, then, should [we] continue a practice fraught with such danger, when rigid sanitation and prompt quarantine (which are absolutely safe) would effectually stamp out the disease[?]”⁶²

Support for nosodes was not unanimous, however. As Martin Kaufman’s research indicates, while homeopaths were a part of anti-vaccination efforts in the nineteenth century, vaccination divided the profession. Some homeopaths saw vaccination as proof of the law of infinitesimal dose, which argued that medicine should be diluted because vaccines used doses much smaller than many other medical interventions of the day. Others, believing the dose was still too high, saw it as another crude medicine that had the ability to harm. In Canada, homeopath Thomas Nichol stood in firm support of vaccines and refused to discuss nosodes.

⁵⁹ See “Homeopathy or Anti-toxin,” *Montreal Homeopathic Record* (June 1898): 6 and “Diphtherinum” *Montreal Homeopathic Record* (May 1900): 9.

⁶⁰ See “Homeopathy or Anti-toxin,” *Montreal Homeopathic Record* (June 1898): 6 and “Diphtherinum” *Montreal Homeopathic Record* (May 1900): 9.

⁶¹ William H. King, *History of Homeopathy and its Institutions in America* (New York: 1905); John Haller, *The History of American Homeopathy: The Academic Years*, (New York: Pharmaceutical Products Press, 2005), 1-10.

⁶² R.S. Weir. “Against Vaccination,” *Toronto Star*, 23 March 1901.

Any smallpox epidemic was “the result of neglect of vaccination.”⁶³ Despite disagreement between homeopaths, inquiry into vaccines and nosodes remained relatively free of constraints within Canadian homeopathic journals.⁶⁴

This dynamic research base existed due to a sort of unspoken truce between homeopaths and regular doctors. As JTH Connor’s research indicates, the line separating regular medicine and homeopathy during this period was “permeable.”⁶⁵ Much of the animosity between the two practices was rhetorical posturing. In the end, credentials mattered more than practice – an educated homeopath was better than an uneducated regular physician.⁶⁶

Homeopaths, aware of this environment, built up educational infrastructure or relied upon American facilities to obtain credentials.⁶⁷ Quebec homeopaths earned a variety of concessions from the regular profession. In 1865, the Montreal Homeopathic Association gained the right to license homeopaths who obtained an education from a degree-granting institution.⁶⁸ Soon after, in 1894 they opened the Montreal Homeopathic Hospital.⁶⁹ These accomplishments, however, paled in comparison to the success of homeopathy in Ontario.

⁶³ Thomas Nichol, “Smallpox and its Prevention,” *Montreal Tracts on Homeopathy* 2 (Montreal, Drysdale & Co., 1885), 30.

⁶⁴ Martin Kaufman, “The American Anti Vaccinationists,” 478. Information on the debates over nosodes in the United Kingdom can be seen in P Morrell, “Triumph of the Light – Isopathy and the Rise of Transcendental Homeopathy, 1830-1920,” *Journal of Medical Humanities* 29 (2003): 22-32.

⁶⁵ JTH Connor, “Homeopathy in Victorian Canada and its Twentieth-Century Resurgence: Professional, Cultural and Therapeutic perspectives,” in *Culture, Knowledge and Healing: Historical Perspectives of Homeopathic Medicine in Europe and North America* Eds. Robert Jutte, Guenter B. Risse and John Woodward (Sheffield: European Association of the History of Medicine and Health Publications, 1998), 111.

⁶⁶ *Ibid.*

⁶⁷ This reliance on international education was mirrored in the regular profession, though to a lesser extent as schools were established. See Ellen S. More, “Doctors or Professors? Late Victorian Physicians and the Culture(s) of Professionalism,” *Canadian Review of American Studies* 23 (Spring 1993): 126.

⁶⁸ *Act to Incorporate Montreal Homeopathic Association*, 28 Vic., Cap. 59 [1865], CIHM no. 01620. Arthur Fischer, one of the original board members was greatly influenced by Constantine Hering, the creator of homeopathic nosodes. Arthur Fischer, “Reminiscent Homeopathy” *Montreal Homeopathic Messenger* (April 1896): 2-3.

⁶⁹ “Montreal Homeopathic Hospital,” *Montreal Homeopathic Hospital* (Montreal: Montreal Homeopathic Hospital, 1896), 4. (Microfilm).

Ontario homeopaths created the greatest institutional supports for homeopathic physicians in Canada. Following the approval of a homeopathic licensing board in 1859, Ontario created the College of Physicians and Surgeons of Ontario (CPSO) on which five homeopaths, out of a total of 32 practitioners (including some eclectic practitioners) sat on the board.⁷⁰ Homeopathic participation on the board was more than honorary, and for nine of the years between 1872 to 1898, a homeopath was elected president of the organization, indicating a high level of integration.⁷¹ The homeopaths also founded several hospitals, including the Toronto-based Grace Hospital in 1890.⁷² Through the creation of homeopathic licensing boards to regulate entry into their ranks and other homeopathic infrastructure, homeopaths argued for their professional status within the medical community. According to Connor, accusations of quackery, i.e., knowingly offering ineffective or harmful treatments, were quite common in this period, and professional status allowed homeopaths to fight back against accusation of quackery.⁷³

Both regulars and homeopaths were concerned with the education of their peers, seeing high standards as the path towards both greater credibility and popularity. C.T Campbell, speaking in the 1890s, noted that homeopaths had raised their educational standards “higher than many of our allopathic (regular) colleagues.”⁷⁴ The strategy of high standards ensured that homeopaths could argue that their credentials were well earned, lending homeopaths the security to practice and prescribe their own remedies, including nosodes.⁷⁵

⁷⁰ Ania, “Homeopathy”. Connor, “Homeopathy in Victorian Canada,” 122.

⁷¹ Connor, “Homeopathy in Victorian Canada,” 122.

⁷² Ania, “Homeopathy”.

⁷³ Connor, “Homeopathy in Victorian Canada,” 122.

⁷⁴ Clarence T. Campbell, *Medical Legislation in Ontario* (Toronto: Canadian Institute of Homeopathy 1892), 18-19.

⁷⁵ Connor, Homeopathy in Victorian Canada, 126.

While homeopathy remained a secure practice, keeping the practice of homeopathy “pure” was debated among homeopaths. Alongside research, journals included editorials in which homeopaths argued over the very heart of the practice. Most practitioners focused on the degree to which homeopathy should be flexible. One homeopath argued for a middle ground between those who “differ little from [regular] medicine” and those who were “rigidly exclusive.”⁷⁶ Most of the writers in Canada’s homeopathic journals shared this middle course, but; while committed to homeopathy, most homeopaths were likewise committed to using whatever treatment they believed would help their patient, which in some cases meant using nosodes in their practice.

As long as the homeopathic profession retained its security, there was room for pioneering and eccentricity. A letter to the editor of the *Montreal Homeopathic Record*, written in 1900, captures the atmosphere of open debate in the community. The writer, Edgar Grafton argued that ‘like cures like’ was a mistranslation of the Hahnemannian principle *similia similibus curantur*, which Grafton believed was “dogmatic and unscientific,” and that “let likes be treated by likes” was a more correct translation that advised a general rule.⁷⁷ While to modern readers this may seem like splitting hairs, in essence, Grafton argued for the incorporation of what worked, be it homeopathic in nature or otherwise. This view shared by a significant bloc of practitioners, allowed for disparate practices to be employed by homeopaths.

The eclectic environment might have provided an opening for nosodes into the medical milieu at the turn of the century, if not for the problem of keeping adequate vaccination records. Nosodes were ultimately rejected as vaccines alternatives. In Montreal, the *Gazette* reported that the Parkdale School Board brought a Mr. Whinton to task for failing to vaccinate his children.

⁷⁶ Richard Hughes “Homeopathy of Today,” *Homeopathic Messenger* (1901): 68.

⁷⁷ Edgar Grafton, “Some Definitions Emphasized,” *Montreal Homeopathic Record* (July 1900): 4.

He argued that they “had received vaccination homeopathically,” but this argument was rejected because the children “had no visible marks of successful vaccination”.⁷⁸ A total of thirty-eight other children’s homeopathic vaccinations were rejected because they lacked marks.⁷⁹ As historian Jennifer Keelan argues, it is important to note that their rejection was not necessarily an outright rejection of nosodes; rather she suggests that it was the difficulty in keeping vaccination records that held the practice back.⁸⁰ Smallpox vaccination left scars that testified to the protected state of the individual. Nosodes left no marks. In a world without the necessary health bureaucracy to record every vaccination, such marks became a public record of vaccination. Because nosodes were unable to mimic the telltale signs of the smallpox jab, they were considered by the public health community to be insufficient replacements to the smallpox vaccine.⁸¹ However, because nosodes failed to provoke a visible response, they were seen as truly ineffective by public health officials.

Homeopathy in Decline

The homeopathic movement weakened in Canada over the first half of the 1900s, as regular medicine increasingly gained legal and scientific support.⁸² As a result, the publication of homeopathic journals in Canada ceased, and actively published research on homeopathy, including research on nosodes ground to a halt after the *Homeopathic Record* ceased publication in 1904.⁸³ Where Canadian homeopathic journals had once allowed for the flow of new research, this avenue of knowledge generation closed. Besides a forum for research, these journals also

⁷⁸ “A peculiar case,” *Montreal Gazette*, October 9, 1885, 2.

⁷⁹ Ibid.

⁸⁰ Jennifer Keelan, *The Canadian Anti-vaccination Leagues, 1872–1892*, 2004, 20. Accessed via proquest on January 9th, 2019.

⁸¹ Jennifer Keelan, *The Canadian Anti-vaccination Leagues, 1872–1892*, 2004, 20. Accessed via proquest on January 9th, 2019.

⁸² Connor, *Homeopathy in Victorian Canada*, 132.

⁸³ Ania, “Homeopathy”.

allowed for a dynamic homeopathic community that could challenge each others' assertions. Thus, their closure struck a blow to the vitality of homeopathic practice and the shared sense of community. In addition, the dwindling educational infrastructure hampered what had been a cordial relationship between regular and homeopathic doctors. Canada, which had always been dependent on American schools for homeopathic education began to lose access to American schools as they closed or fell below educational standards due to the fading interest in homeopathy.⁸⁴ When New York Homeopathic College closed in 1920, it left students with no options for homeopathic education in North America.⁸⁵ As historian JTH Connor's work shows the fault lines of the medical community in nineteenth century Canada were between the formally educated and the informally educated, the loss of the institutions significantly challenged the maintenance of professional relations with regular doctors.⁸⁶ With the last generation of formally educated homeopaths came the end of the tacit non-aggression pact between regulars and homeopaths.

Over the following decades, what remained of the institutions of Canadian homeopathy gradually wound down. In 1934, Ontario reorganized the College of Physicians and Surgeons of Ontario and reduced the homeopathic contingent from five to one.⁸⁷ The sole surviving homeopathic hospital, the Montreal Homeopathic Hospital, quietly changed its name to the Queen Elizabeth Hospital in 1951.⁸⁸ The last homeopathic representative, Charles Bond, left the board

⁸⁴ William H. King, *History of Homeopathy and its Institutions in America* (New York: 1905) includes the name of 70 Canadians. Haller, *The Academic Years*, 283.

⁸⁵ Haller, *Academic Years*, 291.

⁸⁶ JTH Connor, "Homeopathy in Victorian Canada", 111.

Ibid.

⁸⁷ Fernando Ania, "Homeopathy in Canada: A Synopsis." *Health and Homeopathy* Fall 1995 (accessed June 4, 2019).

⁸⁸ Harold Griffith, *Seventy-Five Year of Service: The Story of the Queen Elizabeth Hospital* (Montreal, 1969) 45.

in 1960.⁸⁹ The infrastructure that had supported the homeopathic community crumbled leaving the scattered homeopaths to train their own apprentices without the security of licensure.

With a stagnant research base, the loss of avenues for debate and declining opportunities for homeopathic education, the Canadian homeopathic community stagnated in the middle of the 20th century. Those practitioners more open to new medical research slowly drifted towards mainstream medical practice, leaving behind a more purist Hahnemannian group, which focused on preserving the original teachings of Samuel Hahnemann, often to the exclusion of other homeopathic ideas, reorienting the smaller community away from pioneering and experimentation towards a decidedly narrow and unchanging field of practice.⁹⁰ This shift was bad news for nosodes, which did not appear in any of Hahnemann's writings.

Falling Anti-Vaccine Sentiment

As homeopathy lost momentum in the twentieth century, vaccines were gaining more acceptance, at least from provincial and federal governments. In the first place, provincial governments began to fund vaccination efforts at the municipal and provincial levels. In 1916, Ontario began to pay for universal smallpox vaccination.⁹¹ Saskatchewan followed suit in 1917 with other provinces following shortly thereafter.⁹² The success of vaccination programs convinced governments to increase spending on vaccination campaigns.

Throughout the first half of the twentieth century, Canada led the development of various vaccine technologies including the pertussis vaccine in 1918, which was updated to a more

⁸⁹ Ania, "Homeopathy".

⁹⁰ JTH Connor, "A Sort of Felo-De-Se: Eclecticism, Related Medical Sects, and their Decline in Victorian Ontario," *Bulletin of the History of Medicine* 65 (Winter 1991): 526. Michael Joiner, *From Thick to Thin, The Remaking of Homeopathy in France*, 3. JTH Connor, "A Sort of Felo-De-Se: Eclecticism, Related Medical Sects, and their Decline in Victorian Ontario," *Bulletin of the History of Medicine* 65 (Winter 1991): 526

⁹¹ "Immunization Timeline," *Canadian Public Health Association* www.cpha.ca

⁹² "Immunization Timeline," *Canadian Public Health Association* www.cpha.ca

effective version in 1936. Canada's most important contribution was the creation of combination vaccines in the 1940s. Over the 1940s, Connaught Laboratories created a combination vaccine of diphtheria, tetanus, and pertussis (DTP).⁹³

By the 1960s, Canadian were routinely vaccinated against measles, mumps rubella, diphtheria, tetanus, pertussis, polio, and smallpox. Despite an increase in the number of vaccines, the DTP vaccine and the Measles, Mumps, Rubella (MMR) vaccine combined vaccines in ways that both reduced the number of shots necessary and lowered the cost of vaccination allowing governments to cover the growing vaccine schedule without straining their budgets.⁹⁴

During this same period, advances in bacteriology and the ideas of immunity gave public health workers more tools to communicate the ideas to the population. Previously, vaccination had been a somewhat mysterious method of preventing disease. Its efficacy remained founded on observations and very little was known about how the process worked. By 1912, though, professionals educated in bacteriology increasingly staffed the Public Health Boards.⁹⁵ These professionals developed materials aimed at educating the general public.

In 1923, the Health Board of Quebec organized a hygiene week, during which the province distributed a "brochure entitled *Pour qu'on aime l'hygiène*, that included a series of health tips for schoolteachers who relayed the information to their students."⁹⁶ Additionally, throughout the year, the province hosted 1,832 public presentations on vaccines.⁹⁷ Ontario saw

⁹³ Luis Barreto, Rob Van Exan, Christopher Rutty, "The Challenge of the Whooping Cough: Canada's Role in the Development of Pertussis Vaccines," *Health Heritage Research*, 4.

⁹⁴ Heather MacDougall and Laurence Monnais, "Not Without Risk: The Complex of Vaccine Resistance in Central Canada, 1885-1960," in *Public Health in the Age of Anxiety: Religious and Cultural Roots of Vaccine Hesitancy in Canada*, edited by Paul Bramadat, Maryse Guay, Julie A. Bettinger, and Real Roy. (Toronto: University of Toronto Press, 2017), 144.

⁹⁵ MacDougall and Monnais, 150

⁹⁶ MA Savard, *Rapport Annuel du Service Provincial d'Hygiène*, (Québec: 1923), 54

⁹⁷ Ibid.

similar efforts to reach out to parents and children alike.⁹⁸ These educational campaigns focused on explaining how vaccination worked in an effort to convince the public to accept vaccines.

From the 1930s on, public health departments focused evermore on using modern advertising techniques to reassure parents about the safety of immunizing their children. Officials presented information in “culturally accessible” terms for different groups.⁹⁹ Unlike in the past, when public health advocates reacted only when outbreaks occurred, they began to organize annual information and vaccination campaigns as a prevention measure; rather than merely responding to a crisis, now public health officials framed vaccines as protecting against these tragic moments. Such events became opportunities to present statistics to parents about the toll disease could take on their family. For example, Dr. Gordon Bates, a member of the health board, wrote an editorial during the national immunization week of 1942 which drew attention to the 8,071 cases and 850 deaths from diphtheria.¹⁰⁰ The annual focus reframed vaccination as a routine, necessary measure rather than a hasty response to tragedy, as had been the case in the past.

In addition to the changing information strategies, vaccination also became safer as scientists and public health officials researched and communicated standards for the storage and administration of vaccines. The addition of Thimerosal to vaccines in the 1930s helped to prevent vaccine contamination.¹⁰¹ Likewise, the invention of air-cooling trucks in 1938 allowed for the development of the “cold-chain,” keeping the vaccine at the same temperature from manufacturer to vaccinator.¹⁰² The cold-chain allowed vaccines to be stored in an environment

⁹⁸ MacDougall and Monnais, 151.

⁹⁹ Laurence Monnais, *Médecine(s) et Santé. Une Petite Histoire Globale* (Montréal : Les Presses de l’Université de Montréal. 2016), 50.

¹⁰⁰ Gordon Bates, “National Immunization Week” *Health*, (Spring 1942): 1-2.

¹⁰¹ “Thimerosal and Vaccines” *FDA* www.fda.gov.

¹⁰² “Frederick McKinley Jones.” *Minnesota Science and Technology Hall of Fame* www.msthalloffame.org

that reduced the likelihood of both the contamination and the destabilization of the vaccine through heat exposure.¹⁰³ As a result, the tragedies of contamination and ineffective vaccination became rare.

Anti-vaccine sentiment dropped during this period of routine, well-advertised vaccination campaigns.¹⁰⁴ In Toronto, the Anti-Vaccination League broadened its mandate to support alternative medical practices, becoming the Medical Liberty and Anti-Vaccination League in 1920.¹⁰⁵ When tragedies like tetanus occurred after vaccination, opponents briefly shifted attention to vaccination, but on the whole opposition to vaccination had diminished significantly.¹⁰⁶ In its place medicine enjoyed a golden age of acceptance in an era of the seeming magic bullets of vaccines and emerging antibiotics.¹⁰⁷ But even as vaccine acceptance reached a high watermark, changing conceptions of medical authority and autonomy created new avenues with which to critique vaccination. These shift in ideas created a resurgent anti-vaccine movement and a market for vaccine alternatives.

Changing Conceptions of Health

Throughout the second half of the twentieth century, new health critiques challenged the supremacy of mainstream medicine and created new avenues for vaccine. The language of environmentalism, feminism, and consumer rights provided a new language for vaccine critiques. As Elena Conis examines in *Vaccine Nation*, the strength of 1970s environmentalism in America meant that “environmentalist metaphors and worldviews” become mainstream,

¹⁰³ John Lloyd and James Cheyne, “The Origins of the Vaccine Cold Chain and a Glimpse of the Future,” *Vaccine* 35 (April 2017), 2116.

¹⁰⁴ MacDougall and Monnais, 151.

¹⁰⁵ Katherine Arnup, ““Victims of Vaccination?”: Opposition to Compulsory Immunization, 1900-1990,” *Canadian Bulletin of Medical History* 9 (1992): 168.

¹⁰⁶ Michael Willrich, *Pox: An American History* (New York: Penguin, 2011), 11. MacDougall and Monnais, 150.

¹⁰⁷ James Colgrove, “Science in a Democracy: The Contested Status of Vaccination in the Progressive Era and the 1920s,” *Isis* 96 (2): 167-191. MacDougall and Monnais, 2017.

which led to this language “seeping” into lay critiques of vaccines.¹⁰⁸ A similar situation occurred in Canada. Canadian environmentalism in the 1970s diverged from earlier environmental movements which focused on the stewardship of resources.¹⁰⁹ Before, the primary concern of environmentalists was ensuring the survival of populations of game, forests and other exploited resources. In the 1960 and 1970s, however, the concerns of environmentalists increasingly coalesced around the risks of pollution from chemicals and industrial waste material growing out of a countercultural turn. In the collection, *Canadian Countercultures and the Environment*, the authors found that chief among the concerns of this new environmentalism was the potential for chemicals to cause harm over long periods of time. Specifically, there was a recurrent worry that the harm of some chemicals was being overlooked because the chemicals might cause harm over periods of time that were longer than many studies to assess toxicity.¹¹⁰

Historian Elena Conis compares Dichlorodiphenyltrichloroethane (DDT) and vaccination to offer a case study of the anxieties related to 1970s environmentalism and its fear of hidden dangers. After World War Two, DDT became seen as a cure-all for problems caused by insects.¹¹¹ In Canada, A. P. Leslie, a researcher for the Ontario Department of Lands and Forests, saw DDT as the “only one hope” to get rid of the spruce budworm that ravaged Ontario forests.¹¹² In the developing world, the newly formed World Health Organization (WHO) hoped

¹⁰⁸ Conis, *Vaccine Nation*, 131.

¹⁰⁹ Colin M. Coates, “Introduction” in *Canadian Counter Cultures and the Environment*, edited by Colin M. Coates (Calgary: University of Calgary Press, 2016), 1-27.

¹¹⁰ Colin M. Coates, editor, *Canadian Counter Cultures and the Environment* (Calgary: University of Calgary Press, 2016).

¹¹¹ Conis, *Vaccine Nation*, 131.

¹¹² A. P. Leslie’s article entitled “DDT in Ontario’s Forests” in 1970 October issue of the *Canadian Geographical Journal*.

that DDT could control the spread of malaria by killing mosquitoes that carried the disease.¹¹³

And yet, DDT quickly became associated with a host of problems. In particular, DDT thinned eggshells and threatened bird populations, particularly the often-hunted waterfowl populations, spoke to the old brand of environmentalism.¹¹⁴ In 1962, years before action would be taken, American marine biologist and conservationist Rachel Carson documented the harm to bird populations arguing that if action was not taken there would be a no baby birds and a “Silent Spring” a phrase which became the title of her book.¹¹⁵ Carson’s work also documented the potential harm of DDT, like cancers and birth defects, to humans.¹¹⁶

The main issue was DDT’s tendency to build up over time. In small quantities, DDT posed little risk to human health. However, DDT is lipid-soluble, meaning it is stored in the fat cells of organisms.¹¹⁷ As larger organisms consume smaller organisms with DDT stores, the concentration increases in a process known as biomagnification. This means that over time, predators consumed and stored higher levels of DDT. It is also an endocrine disruptor. With the build up of DDT in human food supply chains, this posed a threat to embryo and fetus development.¹¹⁸ While this information is widely accepted today, Conis documents the ways in which the risks of DDT were downplayed by American scientists due to its potential to boost

¹¹³ “DDT and Its Derivatives: Environmental Aspects,” *Environmental Health Criteria monograph No. 83*, (Geneva: World Health Organization, 1989), 1-16.

¹¹⁴ “DDT and Its Derivatives: Environmental Aspects,” *Environmental Health Criteria monograph No. 83*, (Geneva: World Health Organization, 1989), 1-16.

¹¹⁵ Rachel Carson, *Silent Spring* (Boston: Houghton Mifflin, 1962), 1-11

¹¹⁶ Rachel Carson, *Silent Spring* (Boston: Houghton Mifflin, 1962), 12-15.

¹¹⁷ *Casarett & Doull’s Toxicology. The Basic Science of Poisons*, Fifth edition; Klaassen, C. D., Amdur, M. O., Doull, J., Eds. (McGraw-Hill: New York, 1996), 145.

¹¹⁸ *DDT. A Review of Scientific and Economic Aspects of the Decision to Ban its Use as a Pesticide* (EPA U. S. Government Printing Office: Washington, DC, 1975), 4.

agricultural yields and protect against malaria. The matter was brought to light only with growing resistance from citizens.¹¹⁹

In Canada, the environmental concerns of citizens gained a platform through Rolf and Wendy Preisnitz' *Natural Life* magazine. In 1976, the Preisnitzs founded LifeMedia, an alternative press, to publish environmental concerns.¹²⁰ In the first issue Rolf Preisnitz stated that *Natural Life*'s mission was to "demonstrate the natural alternatives which will provide the greatest chance for a peaceful, healthy environmentally friendly co-existence."¹²¹ Often, articles were written by readers who had identified their own possible reactions to chemicals and hoped to advise the environmental community of the risk.¹²² The first issue also included an article urging readers to adopt "Zero Chemical Agriculture" and warned of the "hidden dangers" of DDT.¹²³

The story of DDT highlighted the increasing concerns of both scientists and public alike that chemicals might have unknown side effects after exposure. Studies documenting striking increases in allergies, chronic disease, and cancer, stimulated a moment of chemophobia, with laypeople blaming everything from an overly sanitized world to a host of chemicals.¹²⁴ For some, as the articles in Preisnitz's *Natural Life* attest, this uncertainly led to a sort of chemophobia and rejection of as many potentially harmful additives as possible. Due to the plethora of chemicals in circulation at this time, assessing cause and effect of a single chemical on the human

¹¹⁹ Elena Conis, "Vaccines, Pesticides, and Narratives of Exposure and Evidence," *Canadian Bulletin of Medical History* 34 (Fall 2017): 324.

¹²⁰ Rolf Preisnitz, "Our Mission," *Natural Life* 1 (November 1976): 1.

¹²¹ Rolf Preisnitz, "Our Mission," *Natural Life* 1 (November 1976): 1.

¹²² Wendy Preisnitz, "Our History," *Natural Life* 30 (January 2006): 1.

¹²³ "Zero-Chemical Agriculture," *Natural Life* 1 (November 1976): 15.

¹²⁴ Elena Conis, "Vaccines, Pesticides, and Narratives of Exposure and Evidence," *Canadian Bulletin of Medical History* 34 (Fall 2017): 324.

population was difficult.¹²⁵ Nevertheless, since the 1970s, Canadian environmentalists and lay people alike began to organize campaigns against smoking and other activities as the probability of harm became apparent. Then, as with DDT, studies later confirmed the fears of consumers.¹²⁶ Vaccines eventually followed a similar path, with the caveat that despite fears, vaccines were rarely connected to the neurological conditions that skeptics most feared.¹²⁷

Feminist approaches to health challenged orthodox medical authority in ways that created language for vaccine skeptics to appeal especially to mothers of young children. In the 1960s, women's health activists began to raise awareness about the previously undisclosed side effects of contraceptives and other medical interventions like tranquilizers.¹²⁸ The work of these women helped not only to criticize the lack of informed consent that such knowledge withholding represented, but as these side effects were reported and uncovered by women, it led to an elevation of knowledge gained through the lived experiences of women.¹²⁹ Much like the environmentalists, many women began to discover that information that they had previously been told were safe posed risks to their health.

The shifting views of oral contraceptives represents the work done by women's health activists to uncover hidden side effects. As Christabelle Sethna shows through her analysis of the *Montreal Birth Control Handbook*, while the first edition of the handbook portrayed oral

¹²⁵ Maureen R. Gwinn et al, "Chemical Risk Assessment: Traditional vs Public Health Perspectives," *American Journal of Public Health* 107 (July 2017): 1032-1039.

¹²⁶ For the story of smoking and cancer see Robert N. Proctor, "The History of the Discovery of the Cigarette-Lung Cancer Link: Evidentiary Traditions, Corporate Denial, Global Toll," *Tobacco Control* 21 (March 2012): 87-91.

¹²⁷ Not to say that none have been linked, cases of Guillaine-Barre Syndrome have convincingly linked to vaccination, and post-vaccination anaphylaxis also can occur when subjects have allergies to vaccine components.

¹²⁸ Elizabeth Siegel Watkins, *On the Pill: A Social History of Oral Contraceptives, 1950-1970* (Baltimore: John Hopkins University Press, 1998), 103-31.

¹²⁹ Wendy Kline, *Bodies of Knowledge: Sexuality, Reproduction, and Women's Health in the Second Wave* (Chicago: University of Chicago Press, 2010); Sandra Morgen, *Into Our Own Hands: The Women's Health Movement in the United States, 1969-1990* (New Jersey: Rutgers University Press, 2002). Leslie Reagan's *Dangerous Pregnancies: Mothers Disabilities and Abortion in Modern America* (Berkeley: University of California Press, 2010), examines how rubella and the rubella vaccine put the responsibility on Mothers to avoid the birth of disabled children exposing the complex links between vaccines, motherhood, and disabilities.

contraceptives as the gold standard of birth control, by the third edition this view was tarnished.

Drawing on American journalist Barbara Seaman's book, *The Doctors' Case Against the Pill*,¹³⁰

the authors of the *Handbook* added a new section that discussed a multitude of possible side effects reported by women. Women no longer uncritically accepted medical authority and interventions.¹³¹

Importantly for the Canadian anti-vaccine movement, Seaman's work, based on interviews with women that documented their experiences, empowered women to take their personal concerns seriously and take charge of their health, while providing a framework for criticizing medical authority through the evidence of experience.¹³² Similarly, as Conis argues, opponents of vaccination embraced the notion that individual mothers should be responsible for their own health, frequently using the language of taking charge of their own health to argue that they should be the decision-makers for their children on the issue of vaccination.¹³³ If doctors had hidden the consequences of the pill, vaccination skeptics reasoned, that they might be hiding the risks of vaccination and damaging their children.¹³⁴

With growing criticism of medicine, space opened for alternative therapeutic systems that had languished (but never disappeared) during the golden age of medicine. In the 1970s, alternative medicine began to return to relevance. These practitioners had more time than overburdened doctors to listen to the experiences of their patients and consciously attempted to

¹³⁰ Ibid,

¹³¹ Christabelle Sethna, "The Evolution of the *Birth Control Handbook*: From Student Peer-Education Manual to Feminist Self-empowerment Text, 1968-1975," *Canadian Bulletin of Medical History* 23 (2006): 98.

¹³² Ibid, 101.

¹³³ Conis, *Vaccine Nation*, 116.

¹³⁴ Conis, *Vaccine Nation*, 116. Despite the activist strategies they borrowed from the women's health movement to further their own project, Conis is careful to note that the women using these arguments were not all self-described feminists decoupling vaccine resistance and feminism from each other.

limit the number of pharmaceutical drugs their patients took.¹³⁵ At the same time, these systems often emphasized radically different explanations for disease, like the vitalistic ideas of chiropractic that linked disease to misalignment.¹³⁶ Both patients and practitioners could view these alternative medical systems as a complete replacement for mainstream understandings of disease threatening the ascendancy of vaccination.

Underpinning the environmental and feminist critiques of healthcare was a broader movement towards people seeing themselves as consumers of health care rather than patients. As Crellin, Andersen, and Connor explore in *Alternative Healthcare in Canada: Nineteenth and Twentieth-century Perspectives*, these patients/consumers saw that medicine, while good for many conditions, fell short when it came to the new problems of chronic conditions and disabilities, and therefore, the patients/consumers searched for alternatives.¹³⁷

The same was true for potentially fatal conditions, like cancer. Lucas Richert's research on the history of the popular, though unproven, cancer drug Laetrile exposes the tensions between the desires of patients and the knowledge of the medical establishment.¹³⁸ Laetrile, also known as amygdalin, was popularized in the 1960s and 1970s as cancer patients sought 'natural' alternatives to the harsh chemoradiation regimes. Due to the lack of evidence, however, the United States Food and Drug Agency restricted the transport of Laetrile and distributed

¹³⁵ Amy Sue Bix, "Engendering Alternatives: Women's Health Care Choices and Feminist Medical Rebellions," in *The Politics of Healing, Histories of Alternatives Medicine in Twentieth Century North America*, ed. Robert D. Johnston (New York: Routledge, 2004), 280.

¹³⁶ Lesley Biggs, David Hay, and Dale Mierau, "Canadian Chiropractors' Attitudes Towards Chiropractic Philosophy and Scope of Practice: Implications for the Implementation of Clinical Practice Guidelines," *The Journal of Canadian Chiropractic Association* 37 (Fall 1997): 145-154.

¹³⁷ JK Crellin, RR Andersen and JTH Connor, *Alternatives Health Care in Canada, Nineteenth and Twentieth-Century Perspectives* (Toronto: Canadian Scholars Press, 1997), 41.

¹³⁸ Lucas Richert, *Strange Trips* (Montreal: McGill-Queen's University Press, 2018), 65.

pamphlets that proclaimed the drug “worthless ... dangerous ... contaminated.”¹³⁹ These actions prompted the creation of the Committee for Freedom of Choice in Cancer Therapy in reaction to the clampdown of Laetrile in the same year.

Using the language of choice, patient-consumers argued for access to Laetrile and by 1982, patients in 24 states the gained access to the drug.¹⁴⁰ Even after conclusive evidence from a 1981 study showed that the drug did not work, many patients were adamant that they retained the right to choose their own treatment plan for cancer.¹⁴¹ The Laetrile story emphasizes the power of the shifting from patients, who are perceived to be passive recipients of care to consumers who are active managers of their health and health care. Being a health consumer seemed to entail the right to choose for oneself a health treatment plan. At the same time, as some patients fashioned themselves as consumers, some members of the public decided to shirk consumerism and harshly criticized the enormous profits of the pharmaceutical companies. In effect, the turn towards consumerism marked a shift doctor directed medicine to individual choice. Although historians have focused on this shift in the United States, the Canadian experience is worth examining, as it became clear that the ideas of individualism threatened province-wide immunization programs.¹⁴² While vaccines represent the least profitable pharmaceutical products, opponents of vaccination have nonetheless put forth that vaccines are hugely profitable.¹⁴³ It is also important to note that infectious diseases are different than conditions like

¹³⁹ “Laetrile Warning,” Rockville: Food and Drug Administration, 1977. Collections of the National Library of Medicine.

¹⁴⁰ Lucas Richert, *Strange Trips* (Montreal: McGill-Queen’s University Press, 2018), 70.

¹⁴¹ *Ibid.*

¹⁴² MacDougall and Monnais, 151.

¹⁴³ Eileen Murphy, “Weakened Defenses: Why Doesn’t the World’s Sole Superpower Have Dependable Supplies of all Vaccine for its Citizens,” in *John Hopkins Public Health Magazine* (Fall 2002): online. <https://magazine.jhsph.edu>.

cancer, which cannot be spread through contact. Despite this, ideas of choice and consumerism are common refrains in the anti-vaccine community.

The Birth of a New Anti-Vaccine Movement

In Ontario, in 1982, parents who had experienced what they believed to be vaccine damage to their children connected with each other. They did so in response after the Ontario government's bid to increase vaccination uptake rates through the introduction of the "*Immunization of School Pupils Act*,".¹⁴⁴ The Act gave health officers the right "to bar from school those children who had not completed the prescribed vaccination program."¹⁴⁵ That same year the Documentary *DPT: Vaccine Roulette* aired across North America, bringing the stories of parents who believed their children had been brain damaged by the DPT vaccine.¹⁴⁶ A group of five families in Ontario who had seen the programme, decided that the problem was larger than their own family, and when the legislation was announced, these families met each other agreed to protest outside Queen's Park in Toronto.¹⁴⁷

In the case of alleged vaccine injury, the evidence of injury was often taken from parents' experiences with a child before and after vaccination. Parents of these so-called vaccine injured children often claimed that their child went from "absolutely normal" to "damaged" minutes after vaccination.¹⁴⁸ It should be noted that given the evidence linking vaccines with neurological damage is mixed, these experiences more likely represent the fact that many neurological conditions are hard to identify in children under 18 months and only become

¹⁴⁴ Katherine Arnup, "'Victims of Vaccination?': Opposition to Compulsory Immunization, 1900-1990," *Canadian Bulletin of Medical History* 9 (1992): 168.

¹⁴⁵ Arnup, 168.

¹⁴⁶ Lea Thompson, *DPT: Vaccine Roulette* (Washington: WRC-TV, 1982).

¹⁴⁷ "Association for Vaccine Damaged Children 1986 Queen's Park Press Conference," *Vaccine Choice Canada* www.vaccinechoicecanada.com Accessed November 22, 2019.

¹⁴⁸ "Association for Vaccine Damaged Children 1986 Queen's Park Press Conference," *Vaccine Choice Canada* www.vaccinechoicecanada.com Accessed November 22, 2019.

apparent after developmental milestones are missed, which also happens to coincide with the vaccination schedule.¹⁴⁹ Because of the heightened awareness of the environmental risks of DDT and the increased attention of women's negative experiences with birth control, the claims that DPT vaccines were harming children likely received more sympathy and attention than might have otherwise been the case.

As the Ontario legislature debated the passage of their vaccine act, distraught parents came together into protest. For many parents, it was the first time they had come together to meet others struggling with the same issues. In 1983, these parents, under the leadership of Edda West, founded the Committee Against the Compulsory Vaccination.¹⁵⁰ West herself had a child with cerebral palsy, a condition which she believed to have happened after a DPT shot. West had devoted herself to assembling a coalition to fight against vaccination.¹⁵¹ The Committee sent out newsletters to members, allowing them to share stories with each other and develop a sense of community. At a 1986 press conference at Queen's Park, one father remarked that he was "delighted to belong to a community ... and to find that [my wife and I] are not alone."¹⁵²

Besides finding community, the group agitated against vaccination and shared their stories with parents hoping to win more adherents to their cause. A 1986 press conference was rife with emotional stories designed to instill fear in other parents. While West claimed that the conference was "not about fear, but knowledge," the words of the other members betrayed the atmosphere of alarm they hoped to create. "It's vaccine roulette," said one member, echoing the

¹⁴⁹ Paul Offit, *Autism's False Prophets: Bad Science, Risky Medicine, and the Search for a Cure* (Columbia University Press, 2008), 14.

¹⁵⁰ Arnup, 168.

¹⁵¹ Arnup, 171.

¹⁵² "Association for Vaccine Damaged Children 1986 Queen's Park Press Conference," Vaccine Choice Canada www.vaccinechoicecanada.com Accessed November 22, 2019.

title of the 1982 documentary, “you take your chances.”¹⁵³ West looked to turn the Committee Against the Compulsory Vaccination into a permanent organization and used the 1986 Queen’s Park Conference to help create the Vaccine Risk Awareness Network (VRAN) the following year.¹⁵⁴ Within these pages the threads of environmentalism and consumer choice become most prominent. West skillfully used the anxieties of parents to create a risk communication strategy that would convince parents to avoid vaccination. West’s 1994 editorial claimed that governments “inject poisons into healthy infants” echoing the strains of chemophobia in wider culture, and it called to attention the need to analyse the effects of “injecting toxic chemicals into the child’s bloodstream.”¹⁵⁵ The editorial also directly blamed vaccines (without evidence) for rising rates of cancers, a particular fear of the tide of chemophobia sweeping North America.¹⁵⁶

Key to all the articles was the need for parents to exercise their right to choose whether to vaccinate. In her VRAN editorials, West frequently reminded parents that they had a “right to exemption from vaccination” and that VRAN existed “to empower people to make informed, educated decisions.”¹⁵⁷ Implicit in the idea of informed choice, was that parents who chose to vaccinate were making an uninformed choice. Through the pages of the VRAN, West skillfully turned tools that had helped empower women, protected the public from harmful chemicals, and challenged the medical establishment, into powerful anti-vaccine rhetoric.

According to research by historian Katherine Arnup, the VRAN did not encounter the wider support of earlier anti-vaccine movements of the 1990s. Arnup shows that their

¹⁵³ “Association for Vaccine Damaged Children 1986 Queen’s Park Press Conference,” *Vaccine Choice Canada* www.vaccinechoicecanada.com Accessed November 22, 2019.

¹⁵⁴ Edda West, “Our history,” *Vaccine Choice Canada*. www.vaccinechoicecanada.com. Accessed January 5th, 2019. It should be noted, that the VRAN primarily operated within English Canada.

¹⁵⁵ Edda West, “An Editorial, VRAN (1994): 1-2.

¹⁵⁶ *Ibid*.

¹⁵⁷ *Ibid*; VRAN (2000) 1,4-7. See also any of the editorials from the VRAN journals, where choice is a constant rhetorical tool.

demonstrations were “poorly attended, and their circulations small.”¹⁵⁸ However, historian Heather MacDougall’s research indicates that this nascent movement contributed to an overall increase in anxiety and apathy towards vaccination by publicizing their experiences.¹⁵⁹ Despite active anti-vaccine groups remaining small in number in this new period of anti-vaccine agitation, the anxiety and apathy of many parents was ripe for commercial exploitation.

Both homeopathy and anti-vaccine movements had weakened at the start of the twentieth century. In the 1970s, however, the anti-vaccine movement regained energy as environmental, feminist, and consumer movements renewed enthusiasm for questioning the role of chemicals in healthcare and focused on the rights of parents to protect their children from vaccination. The same trends that revived vaccine resistance likewise fueled the return of homeopathy. As will be discussed in the next chapter, homeopathy was well placed by the 1970s to offer alternatives to pharmaceutical biomedicine, leaning on a set of rhetoric that resonated with health consumers who were increasingly weary of chemicals and thirsting for choice. By the 1980s, companies began to mass manufacture homeopathic remedies. Using homeopathic education and research to remake Canadian homeopathy in their own image, these companies managed to rehabilitate nosodes in English Canada throughout the 1980s and 1990s and gave the anti-vaccine movement a medical technology with which to build new rhetorical strategies. It should be noted that while a market for vaccine alternatives existed, it is not clear that without the work of Boiron that nosodes would have broken through the conservatism of the homeopathic community of the 1980s. Boiron did not simply harness the market for vaccine alternatives it had to expend considerable effort to create space from nosodes within Canadian homeopathy.

¹⁵⁸ Arnup, 171.

¹⁵⁹ Heather MacDougall and Laurence Monnaies, “Vaccinating in the Age of Apathy: Measles Vaccination in Canada, 1963–1998,” *CMAJ* 190 (April 2018), E399.

Chapter Two:

Commercial Homeopathy in Canada: Remaking Homeopathy, Reviving Nosodes

In 1998, Andre Coulamy, the president of the French Society of Homeopathy teamed up with the French homeopathic manufacturer, Boiron, to study a homeopathic flu vaccine. The report claimed that “eighty percent” of patients did not need other remedies and “ninety percent” did not contract influenza.¹⁶⁰

The Coulamy report represents the greatest triumph of Boiron’s aggressive campaign to shape Canadian homeopathy. Seeing the lucrative potential of vaccine resistance to market its own nosodes, Boiron benefitted from the differences between homeopathy and biomedicine, all the while appropriating the research and educational practices of mainstream pharmaceutical companies. Nonetheless, the scale of Boiron’s operation betray the fact that nosodes encountered resistance from homeopaths, indicating that nosodes may have remained forgotten in Canada absent Boiron’s efforts.

When homeopathy returned to prominence, in the late 1970s, it occupied a weakened position in the sphere of medicine because the previous culture of homeopathic research did not return to Canada. Rather than adopting more recent developments, like nosodes, Canadian homeopaths remained turned inward towards the publications of Samuel Hahnemann.¹⁶¹ Homeopathic conservatism exerted significant pressure against the reintroduction of nosodes into Canadian homeopathic practice. It was French research and funding, led by Boiron, which helped inject nosodes into the Canadian context. Practitioners in this early period of revival emphasized lengthy consultations to discover the particular symptom to which the similar

¹⁶⁰ Andre Coulamy, “Survey of the Prescription Habits of Homeopathic Doctors on the Subject of a Single Medication: Influenzinum,” *French Society of Homeopathy Conference Notes*, 1998.

¹⁶¹ Connor, “Homeopathy in Victorian Canada,” 130.

remedy should be applied. Rather than multiple remedies, they stressed the law of single remedy, which stipulated that only one homeopathic medicine should be taken at a time.¹⁶² On the coattails of desire for patient-centred care (CH1), homeopathy's tradition of long probing sessions into the lifestyle and psyche of its patients recaptured the public's attention. Lengthy consults and single remedies differentiated homeopathic medicine from biomedicine and its short, sometimes terse, consults that could end with patients taking many medicines at one time.¹⁶³

Increased interest in homeopathy led to the gradual rebuilding of homeopathic educational infrastructure. While apprenticeships and trips to other countries had ensured survival of homeopathy, the opening of the Canadian College of Naturopathic Medicine in 1978 signalled a return to homeopathic education in English Canada.¹⁶⁴ Soon, specialized colleges of homeopathy opened. The Homeopathic Practitioner Programme (later the Homeopathic College of Canada) opened in Toronto 1992, and the Canadian College of Homeopathic Medicine in 1994.¹⁶⁵ This time, however, education did not guarantee the acceptance of homeopaths by the mainstream medical community.

Due to homeopathy's existence as an unregulated medical practice, the fledgling homeopathic schools did not receive government funding.¹⁶⁶ To fund their operations, they relied on donations from supporters of homeopathy. Many of these donors were older homeopathic

¹⁶² Connor, "Homeopathy in Victorian Canada," 130.

¹⁶³ Michael Joiner, *From Thick to Thin, The Remaking of Homeopathy in France*, 3. Thickness refers to the practices and rituals that are used in homeopathic consultations. On one hand, it refers the "positive ... special attention that is paid to illness" including physical symptoms but also the mental symptoms like anxiety and stress. On the other hand, it refers to negative, the way in which homeopathy defines itself in opposition to medicine using small doses and single remedies.

¹⁶⁴ "Celebrating Forty Years," *Canadian College of Naturopathy* (Toronto: 2018), 1.

¹⁶⁵ "The Homeopathic College of Canada," *Homeopathic College of Canada* www.homeopathy.edu. Accessed July 29 2019.

¹⁶⁶ "Financing the CCNM" *Canadian College of Naturopathic Medicine* www.ccnm.edu accessed 29, 2019

practitioners themselves.¹⁶⁷ However, homeopathic manufacturers eventually established themselves as generous corporate donors. They used significant financial resources to shape the education and research available to English Canadian homeopaths. At the same time as the manufactures reshaped the practice of homeopathic practitioners, they produced homeopathic guides to influence homeopathic consumers.

Hahnemannian versus Commercial Homeopathy

Amid increasing demand, homeopathic manufacturing had quickly become a lucrative business within Canada. A half dozen such companies established themselves in Canada in the 1980s.¹⁶⁸ The largest of these included, Dolisos, which expanded to Canada from France in 1986, Homeocan, founded in Montreal in 1987, as well as Boiron in 1988. Together these companies each controlled a quarter of the Canadian homeopathic market in 1991.¹⁶⁹ Boiron, which eventually captured a majority share of the homeopathic market, engaged in the most aggressive campaign to develop the Canadian homeopathic market.¹⁷⁰

Homeopathic companies were almost immediately successful in Canada. From 1987-1995, the homeopathic market “benefitted from 15-20% growth per year.”¹⁷¹ Homeopathy experienced continued strong growth into the twenty-first century.¹⁷² Manufacturers expended no small amount of money and effort to ensure robust growth in both homeopathic practitioners and consumers. In 1991, a consortium of manufacturers successfully petitioned the Government of Quebec to study regulating natural health products, which they hoped would allow them access

¹⁶⁷ “Celebrating Forty Years,” *Canadian College of Naturopathy* (Toronto: 2018), 4.

¹⁶⁸ *Etude Sur L’Homeopathie et Les Medications Naturelles* (Quebec, Government of Quebec, 1991), 31.

¹⁶⁹ *Etude Sur L’Homeopathie et Les Medications Naturelles* (Quebec, Government of Quebec, 1991), 31.

¹⁷⁰ Graham George, “Spreading Homeopathic Message,” *Financial Times*, January 4, 1989, 21. See below.

¹⁷¹ Pascal Frochisse, “L’Homeopathie au Canada,” in *Nouvelles de la Chambre de Commerce Francaise au Canada* (Quebec, Chambre de Commerce Francaise au Canada, 1994) 35.

¹⁷² Clare Relton et al, “Prevalance of Homeopathy Use by the Population Worldwide: A Systematic Review,” *Homeopathy* 106 (May 2017), 74.

to more consumers.¹⁷³ Actual changes in legislation did not come until much later, when in 2004 homeopathic medicine gained access to Natural Product Numbers and placement in pharmacies.¹⁷⁴

Manufacturers had different objectives from many would-be homeopaths in their quest to rebuild the homeopathic profession. According to a study by sociologist Michael Joiner, manufacturers hoped to “thin” out homeopathic practice.¹⁷⁵ Hahnemannian homeopathy used only *single remedies*. For any person with an illness, the principle of single remedy required that only one of the hundreds of existing remedies be used.

In contrast, homeopathic manufacturers hoped to sell *combination remedies*, which refers to medicines created by mixing several of the most common homeopathic remedies prescribed for a biomedically defined disease. In addition, the manufacturers developed easily recognizable and marketable names, and the products were usually named after the disease they are supposed to treat; for example, a combination remedy for influenza would be labelled “Flubuster”.¹⁷⁶ In essence, manufacturers believed that remaking homeopathic medicines along biomedical lines would allow homeopathy to attract a wider customer base.¹⁷⁷ The benefits of combination remedies were twofold; first, companies held patents to combination remedies, thus efforts to increase their brand profile directly benefitted the company without boosting their competitors

¹⁷³ Office Des Professions Du Quebec, *Etude Sur L’Homeopathie et Les Medications Naturelles* (Quebec, Government of Quebec, 1991), ix.

¹⁷⁴ *Natural Health Product Regulations* (Ottawa: Natural Health Product Directorate, 2004). The response of industry and consumers to the NHPD changes is examined in several articles including: Karen Moss, Heather Boon, Peri Ballantyne, “The Professionalization of Western Herbalists: Response to the New Product Regulations in Canada,” *Complementary Therapies in Medicine* 115 (December 2007): 264-270; Heather Boon, Natasha Katchan, and Boecker Andreas “Use of Natural Health Products: How Does Being Natural Affect Choice?” *Medical Decision Making* 33 (2013): 282-297.

¹⁷⁵ Michael Joiner, *From Thick to Thin, The Remaking of Homeopathy in France*, 2.

¹⁷⁶ Michael Joiner, *From Thick to Thin, The Remaking of Homeopathy in France*, 45.

¹⁷⁷ Michael Joiner, *From Thick to Thin, The Remaking of Homeopathy in France*, 33.

remedies.¹⁷⁸ At the same time, they had easy to understand names, Flubuster could be used to deal with flu, whereas under single remedies obscure names like gelsemium and arnica did little to flag to consumers their use.

According to Joiner, the prevailing system of extensive consultation, while gathering information from the patient, privileged the elite knowledge of the homeopath, but this process was not as consumer friendly as a combination remedy with a clear label. Instead of long sessions, commercial homeopathy desired practitioners who had simple consults that mirrored visits to mainstream medical office and quickly identified a remedy. Even further, and discussed later in this chapter, they created consumers empowered to seek out their own homeopathic remedies without any practitioner intervention playing upon popular notions of patient autonomy in choosing her/his health care. While homeopathy benefitted from its reputation as patient-centred and was less reliant of pharmaceutical intervention, homeopathic manufacturers believed they could benefit from this image while fundamentally altering the practice to facilitate the sale of their own easy to use medicines.¹⁷⁹

Homeopaths normally were bound by the rule of single remedy, which meant identifying a symptom, like chills or headaches rather than a disease, like flu. Then a remedy for the symptom was chosen, which meant that multiple people with the flu, might be treated with one of hundreds of remedies, depending on their symptoms.¹⁸⁰ At the same time, people with

¹⁷⁸ Michael Joiner, *From Thick to Thin, The Remaking of Homeopathy in France*, 77.

¹⁷⁹ Michael Joiner, *From Thick to Thin, The Remaking of Homeopathy in France*, 45.

¹⁸⁰ For an example of the myriad of remedies, read Lyle W. Morgan II, *Homeopathy and Your Child* (Rochester: Healing Arts Press, 1992), 56.

different diseases might have similar symptoms and use the same remedy.¹⁸¹ The long probing sessions were designed to identify that single remedy.

The introduction and use of nosodes, which abided by the law of single remedy still faced an uphill battle with the post-revival community since they were not classical remedies. Nosodes challenged the foundation narratives of homeopathy and their philosophical underpinning. First, Hahnemann did not create them; Hering did. Second, using the *same* disease as an ingredient generally did not accord with the homeopathic principle that *like cures like* (something that produce like symptoms should be used to treat disease). It was similarity, not sameness, for which homeopaths searched. Finally, Hahnemann had never claimed to prevent disease, only to remedy disease when it occurred. All these factors reduced the likelihood that Canada's insular homeopathic community would embrace nosodes.¹⁸²

The marketing of nosodes was a secondary goal to the promotion of combination remedies. There are two main reasons that they were pursued, however; first, nosodes are consumer-friendly since each nosode corresponded to a single dose, and were marketed as a preventative—and not just curative—treatment. Diphtheria, homeopaths claimed, could be prevented by *Diphtherinum*; influenza could be prevented by *Influenzinum*. Like combination remedies, nosodes were eerily similar to their biomedical counterparts. Second, Boiron had become synonymous with the flu nosode *Influenzinum*. In effect, it had its own branded nosode. In Boiron's original market, France, *Influenzinum* which is derived from the strains of virus highlighted by the WHO for that year's flu season, had become one of the most ubiquitous homeopathic remedies. By the early 1998, manufacturers sold around five million doses of

¹⁸¹ Lyle W. Morgan II, *Homeopathy and Your Child* (Rochester: Healing Arts Press, 1992), 13.

¹⁸² Many articles exist that discuss the differences between isopathy (eg. The use of nosodes) and homeopathy. However, no practitioners of strict isopathy exist. Rather, there are homeopaths who used isopathy alongside homeopathy.

Influenzinum in France making it the second most purchased homeopathic medicine in France.¹⁸³ If Boiron could successfully market nosodes to Canadians, they could increase their profits. But, as noted, harnessing this commercial potential of nosodes in Canada necessitated changes in the beliefs of hesitant practitioners.

Through sweeping investments in education, research, and by generating publicly available information to promote a new do-it-yourself homeopathy, manufacturers created an environment in English Canada that was hospitable to new ideas, as well as some older and ignored ones, like nosodes by reimagining homeopathy as just one more choice in the medical marketplace. Manufacturers had to convince homeopaths that nosodes were properly homeopathic amid competing professional and corporate imaginings of homeopathy. For the public, homeopathic guides provided a way to argue that consumers could exercise medical autonomy by researching and choosing nosodes.

These efforts were not duplicated in Quebec. No Quebec school offered scholarship from Boiron. I would speculate that this difference is due to competing views of the regulatory and educational goals. In general, as Tracey Adams suggests in *Regulating Professions*, Quebec's alternative health practitioners rejected self-regulation as a path towards greater autonomy.¹⁸⁴ While English Canada returned to institutionalized education, education of homeopaths in Quebec remains based on apprenticeships and is influenced by the personalities of the teacher.¹⁸⁵ One of the leading places for homeopathic education in Quebec, the Canadian Academy of

¹⁸³ Michel Piolot et al. "Homeopathy in France, According to Reimbursements in the French National Health Insurance Database (SNIIRAM)" *Family Practice* 32 (August 2015) 442-448. Andre Coulamy, "Survey of the Prescription Habits of Homeopathic Doctors on the Subject of a Single Medication: Influenzinum," *French Society of Homeopathy Conference Notes*, 1997.

¹⁸⁴ Tracey L. Adams, *Regulating Professions: The Emergence of Professional Self-Regulation in Four Canadian Provinces* (Toronto: University of Toronto Press, 2018), 209.

¹⁸⁵ This is based on my own survey of homeopathic institutions in Quebec.

Homeopathy, is led by André Saine,¹⁸⁶ who has spoken out in many interviews about his resistance to nosodes.¹⁸⁷ At the same time, the apprentice model reduced the burden of building homeopathic institutions, likely reducing Quebec's reliance on outside funding for education, and thereby, making the French Canada more resistant to corporate reimagining of homeopathy.¹⁸⁸

Funding Homeopathic Education

The precarious funding situation of homeopathic colleges in Canada allowed considerable influence from commercial homeopathy, which funded education in the hope of refilling the emptied ranks of homeopathic practitioners to keep up with rising consumer demand and to avoid a shortage of practitioners to prescribe their remedies. At the same time, corporations desired these homeopaths to be open to new research and remedies, preferably their own patented combination remedies. In order to inculcate practitioners into the culture of commercial homeopathy, the manufacturers provided other pockets of funding for travel to conferences and the generation of research on homeopathic medicine. In many respects, commercial homeopathy adopted the same tactics as the pharmaceutical industry.¹⁸⁹ For example, commercial homeopathy tried to increase access to homeopathic education.

¹⁸⁶ "André Saine, N.D." *Canadian Academy of Homeopathy* www.homeopathy.ca. Accessed July 30, 2019.

¹⁸⁷ André Saine, "Homeopathy is a Natural Science in its Purest Sense," www.homeopathy.ca. Accessed July 30, 2019.

¹⁸⁸ Finally, it should be noted that, while this chapter paints Boiron's efforts as successful, nosodes were by no means unanimously accepted by practitioners, older practitioners in France, and likely in Canada by and large reject nosodes. As well, while education is now more often directed through institutions, apprenticeships continue and allow for idiosyncratic practices to flourish. This situation may be challenged by the professionalization of homeopathy allowing for a more synchronized opinion on nosodes in the future.

¹⁸⁹ Where possible I have included information about the financial activities about other homeopathic companies, but, as a reflection of the larger more systemic nature of Boiron's efforts, it makes up the content of many of my sources including newspapers, financial reports, research papers, and institutional records. While I was able to access Homeocan's documents, ultimately, I was unable obtain consent to use their information in the study. Nonetheless, the work at Homeocan gave me insight into what type of documents existed in the public domain.

Nonetheless, its status as an elective course as well as the use of an alternate term indicate that many homeopathic practitioners remained skeptical about nosodes. On top of their sponsorship of educational institutions industry also sponsored educational events.

Boiron's conferences mirrored developments in the mainstream pharmaceutical world. Historian Jeremy Greene's work on Generic medicine notes that pharmaceutical companies in the 1970s and 80s saw doctors as uniquely placed to recommend prescriptions for their patients, Boiron clearly hoped to influence the cures given by homeopaths.¹⁹⁰ Boiron provided \$50,000 of in-kind support annually through research presentations and information sessions regarding homeopathic medicine. These presentations mimicked those given to biomedical practitioners by mainstream pharmaceutical companies in the latter half of the nineteenth century.¹⁹¹ Company representatives introduced students to a product and its uses for patients.¹⁹² This is a striking example of the fact that while many alternative medical movements benefitted from the negative images of pharmaceutical companies and the medical profession at the time, alternative medicine could be big business and suffered from the same problematic concern commercial interests. Through sponsorship, manufacturers gained access to institutions and directly provide students with information about their remedies and control the narrative around them. Similarly, the manufactures sponsored lectures to faculty.¹⁹³

Another strategy was to sponsor conferences in Canada, as well as travel to those conferences, on topics that they supported. The goal was to introduce Canadian homeopaths, and

¹⁹⁰ Jeremy Greene, *Generic: The Unbranding of Modern Medicine* (Baltimore: John Hopkins University Press, 2014), 10.

¹⁹¹ "Annual reports of the CCNM 1991-2018," CCNM www.ccnm.edu. Ray Mohniyan, "Who Pays for Pizza? Untangling the Relationships Between Doctors and Drug Companies," *BMJ* 326 (May 2003): 1193.

¹⁹² "Annual reports of the CCNM 1991-2018," CCNM www.ccnm.edu.

¹⁹³ Milan Korock, "Is There a Future for Homeopathy," *CMAJ* 132 (Apr 1985): 841.

other holistic practitioners, to their remedies.¹⁹⁴ Before establishing themselves in Canada, for example, Boiron hosted information seminars in 1984 and again in 1985, in Sherbrooke, for the Quebec Holistic Medical Association.¹⁹⁵ At least three of the attendees subsequently enrolled in correspondence courses offered through Boiron's own education program at the Lyon institute in France. Dr. Paul Drouin, a former general practitioner, recalled finding himself "in an uncomfortable place" in biomedicine before travelling to the conference and "finding homeopathy".¹⁹⁶ As did Drs. Jean Drouin and Ginette Varin, who attended the Boiron-sponsored World Homeopathic Conference in Quebec in 1998.¹⁹⁷

The existence of several interventions in Canadian homeopathic education underscores the fact that Canadian homeopaths gained their credentials in a variety of ways from different countries. In most cases, however, Boiron provided funding for, or directly administered, this education. While not discussed in detail here, the transformative experiences recorded by doctors highlights another key plank in Boiron's program: to convince other professionals, such as chiropractors or holistically-minded doctors, who were less tied to homeopathic principles, to use Boiron's homeopathic remedies in their practices.¹⁹⁸ Conferences thus both served to convert medical doctors and holistic practitioners to homeopathy while also directing existing homeopaths towards manufacturer-funded research from the Boiron Institute in Lyon. Such opportunities began to reconnect Canada to the international research being done on homeopathy

¹⁹⁴ While not discussed in detail here, another key plank in the acceptance of combination remedies was to convince less dogmatically Hahnemannian holistic professionals, such as chiropractors to use homeopathic remedies in their practices.

¹⁹⁵ Milan Korock, "Is There a Future for Homeopathy," *CMAJ* 132 (Apr 1985): 841. *Le Rapport L'Agora sur les Médecines Douces*, (Les Éditions de L'Agora, Québec, 1985).

¹⁹⁶ Paul Drouin, *Creative Integrative Medicine: A Medical Doctor's Journey Toward a New Vision* (Balboa Press, 2014), 15-25.

¹⁹⁷ "Homéopathie: Diluer Pour Soigner," *La Presse*, May 31, 1998, C1. AND Catherine Thibideau, "Congrès mondial sur l'Homéopathie à Québec," *La Presse*, May 31, 1998, C3.

¹⁹⁸ Milan Korock, "Is There a Future for Homeopathy," *CMAJ* 132 (Apr 1985): 841. *Le Rapport L'Agora sur les Médecines Douces*, (Les Éditions de L'Agora, Québec, 1985). While the topic of other medical modalities using homeopathic medicine is interesting it did not fit within the scope of the project to discuss these varied experiences.

in general, and, in particular, to studies funded by industry to justify the use of non-Hahnemannian homeopathy.

Memory of Water and The Institut Boiron in Lyon

Research interest in homeopathy had grown with its increasing popularity in France in the 1970s. University researchers began to investigate homeopathy through randomized controlled trials (RCTs), which are regarded as best practice in pharmaceutical medicine since 1948 when they became the main source of legitimacy for new medicines.¹⁹⁹ By pivoting to RCTs in the 1970s, researchers of homeopathy hoped positive studies might give homeopaths a newfound legitimacy by bringing their evidence base up to present standards.²⁰⁰ However, this academic interest in RCTs was short lived.

Industry sponsored research quickly became the norm as funding for mainstream scientists dried up following the memory of water scandal. On June 30, 1988, *Nature* published a study about the supposed memory of water done at a lab at the French Institut National de la Santé et de la Recherche Medicale (INSERM).²⁰¹ The experiment allegedly proved that even once diluted, chemicals left an imprint on the water's structure. But, John Maddox, the journal's editor was skeptical about this finding, prompting him to investigate the claims. First, he had other labs try to replicate results to no avail. Then, Maddox made a visit to the lab that submitted the results. He found "irregularities in record keeping" and insufficient blinding of researchers to the control group, concluding that the process was flawed.²⁰² Such an investigation was

¹⁹⁹ HO Stolberg, Norman G, Trop I. "The History of Randomized controlled trials," *American Journal Roentgenology*. 183 (6): 1539–44.

²⁰⁰ Joiner, *Thick to Thin*, 20.

²⁰¹ Davenas E et al. "Human Basophil Degranulation Triggered by very Dilute Antiserum Against IgE," *Nature* 333 (June 1988): 816-818.

²⁰² J. Schulte and P.C. Endler, *The Memory of Water: Homeopathy and the Battle of Ideas in the New Science* (San Francisco: Thorons, 1995).

unprecedented and reflects the opposition to the research taking place.²⁰³ Following the discovery of incompetence and fraud in the study, *Nature* retracted the paper. Because of the almost dogged determination of Maddox to get the paper retracted, many homeopaths saw this as an inappropriate inquisition and the paper remained popular in homeopathic circles.²⁰⁴ The university, however, embarrassed by Maddox's discovery and the retraction of the article, pulled back its funding for research into homeopathy leaving industry money to fill the gap. When universities secured government grants to proceed with scientific research, it was mostly given to those hostile to homeopathic medicine.²⁰⁵ As a result, homeopathic research was shut out of larger mainstream research journals. As with education, the vacuum created by the lack of government involvement left industry to pursue its goals unencumbered.²⁰⁶

Serendipitously, Boiron had created the Institut Boiron, in Lyon, only a few years before, in 1985. The institute offered research funding to university partners, placing the company in a prime position to generate research that supported combination remedies and nosodes, which may have contributed to its later international dominance.²⁰⁷ Through the Institute, Boiron employed homeopaths to conduct research. More importantly, they hired publicists to communicate these results for the public.

Homeopathic research bears the marks of the economics of corporate science that has developed over the twentieth century, which pushed corporations to fund studies that cheaply

²⁰³ Michael Joiner, *From Thick to Thin, The Remaking of Homeopathy in France*, 230.

²⁰⁴ For examples see Francis Beauvais, *Ghosts of Molecules-The Case of the Memory of Water*. Lulu, 2012.

²⁰⁵ Michael Joiner, *From Thick to Thin, The Remaking of Homeopathy in France*, 230. A minority of homeopaths managed to continue to publish case studies, a less labor intensive (and less respected) method of research in alternative homeopathic journals. Examples can be found in the of alt-research journals covering homeopathy. Pinto, S., A. V. Rao, and A. Rao. "Lipid Peroxidation, Erythrocyte Antioxidants and Plasma Antioxidants in Osteoarthritis Before and After Homeopathic Treatment." *Homeopathy* 97, no. 04 (2008): 185-189.

²⁰⁶ However, classical case studies continued to be published in exclusively homeopathic journals and complementary medicine journals.

²⁰⁷ Milan Korock, "Is There a Future For Homeopathy," *CMAJ* 132 (Apr 1985): 841. Graham George, "Spreading Homeopathic Message," *Financial Times*, January 4, 1989, 21. See below.

and effectively proved marketable claims.²⁰⁸ The privileged place that research holds in shareholder reports, along with the hiring patterns of the research institute, is indicative of its importance in the successful marketing of homeopathic medicine. After going public in 1987, each Boiron shareholder report pointed out the most important research done by Boiron-affiliated researchers.²⁰⁹ For example, in 1989 and 1998, Boiron highlighted research that alleged the Boiron flu-remedy *Oscillococcinum* was more effective than over-the-counter flu-medicine.²¹⁰

Getting approval for a comparative study of *Influenzinum*, the flu nosode, with the influenza vaccine proved impossible, as scientists considered withholding proven vaccines unethical.²¹¹ Changing their tack, Boiron used a 1998 survey of homeopathic practitioners, in association with the French Society of Homeopathy's Andre Coulamy, to measure homeopaths use and patient satisfaction with *Influenzinum*. The report claimed that "eighty percent" of patients did not need other remedies and "ninety percent" did not contract influenza.²¹² As mentioned, the study had significant problems which render its scientific merit questionable at best, but its creation of a ninety percent efficacy was a useful marketing tool. Boiron's educational and research efforts reached further than practitioners and homeopathic schools. The company also responded medical consumers desirous of more medical autonomy through the creation of Direct to Consumer (DTC) homeopathic guides.

²⁰⁸ Jeremy Greene, *Generic: The Unbranding of Modern Medicine* (Baltimore: John Hopkins University Press, 2014), 42.

²⁰⁹ "Boiron" *Reference for Business* www.referenceforbusiness.com. George Graham, "Spreading Homeopathic Message," *Financial Times*, January 4, 1989, 21.

²¹⁰ These are the studies they noted: Papp R, Schuback G, Beck E, Burkard G, Bengel J, Lehl S, et al. *Oscillococcinum* in patients with influenza-like syndromes: a placebo-controlled double-blind evaluation. *British Homoeopathic Journal* 87 (1998):69-76. Ferley JP, Zmirou D, D'Adhemar D, Balducci F. A controlled evaluation of a homoeopathic preparation in the treatment of influenza-like syndromes. *British Journal of Clinical Pharmacology* 27 (1989):329-35.

²¹¹ A review of the reticence to conduct RCTs can be found here: Nir Ayal and Marc Lipsitch, "Individually-Randomized Controlled Trials of Vaccines Against the Next Outbreak," *Journal of Medical Ethics* (April 2017). Accessed online at www.bmj.com.

²¹² Andre Coulamy, "Survey of the Prescription Habits of Homeopathic Doctors on the Subject of a Single Medication: *Influenzinum*," *French Society of Homeopathy Conference Notes*, 1998.

Direct to Consumer Homeopathy

While medical consumerism had revitalized homeopathy, Boiron also worked to decrease the importance of homeopathic practitioners to the sales of homeopathic medicine. As the Boiron campaign to gain acceptance of combination remedies and nosodes in the professional continued, the company also made appeals directly to consumers. Consumer advocates challenged the norms of medicine and emphasized the significance of empowered and educated medical consumers as a cornerstone for creating a growing market for health and lifestyle information.

Alternative health journals represented the most accessible form of Direct To Consumer (DTC) information. The Vancouver-based alternative health magazine *Alive!* started publishing in 1974.²¹³ An explosion of alternative health literature occurred in the 1990s when several more competitors entered the space, including Toronto's *Vitality* and *Health Naturally*.²¹⁴ During the 1990s, a rapid growth in circulation occurred, with each the publications doubling their circulation. By 1995, *Alive!*, *Vitality* and *Health Naturally* reached approximately 300,000 people.²¹⁵

The editors of these magazines often used them as a forum to organize and agitate for freer access to health foods and were committed to presenting a wide variety of views on alternative medicine. There exists much more biographical information for *Alive!*'s editor, Rhody Lake, than is found for the editors of *Vitality* and *Health Naturally*. According to her

²¹³ "Alive!," Library and Archives Canada. www.lac.gc.ca.

²¹⁴ "Vitality," Library and Archives Canada. www.lac.gc.ca "Health Naturally," Library and Archives Canada. www.lac.gc.ca

²¹⁵ Circulation data was found on the covers of *Vitality* magazine and on the inside cover of *Alive!* and *Health Naturally*. I accessed these resources via LAC on-site consultation.

close friend, Siegfried Gursche, Lake desired to create “a citizen-based foundation for healthcare” driven by “natural health and nutrition.”²¹⁶

Evidence of this approach can be seen in her response to the cancellation of a health-based radio program *Touch of Health* broadcast by CHUM, a local Toronto radio station. In June of 2000, General practitioner, Dr. Cass Ingram alleged that oregano oil could be used to control *e. coli* outbreaks.²¹⁷ Soon after, another general practitioner, Dr. Marchuk, wrote an outraged letter asking for “an *errata* to be broadcast” since there existed no proof to back the claim.²¹⁸ In response, on August 12th, CHUM cancelled *Touch of Health*.²¹⁹ Lake used this event to underscore what she saw as a continuing struggle to maintain access to natural health products through an editorial in *Alive!*. Drawing on the Canadian Broadcast Standards, she alleged that CHUM had a duty to provide “equal representation.” While this attack focused on oregano oil, Lake contended that opponents of natural health hated “alternative, chiropractic, drugless, homeopathic, and preventative” care.²²⁰ Her view, and the view expressed by alternative health magazines in Canada, was that an attack on any fringe medical practice represented a threat to all alternative practices. By publishing magazines that included to a variety of practices, they hoped to ensure the survival of alternative care.

The readership they pursued was eclectic and active. *Alive! Vitality*, and *Health Naturally* marketed their magazines towards health-conscious consumers that came from a variety of backgrounds. Each magazine included sections on diet and lifestyle, mental health, environmental health, homeopathic medicine, traditional Chinese medicine, along with a variety

²¹⁶ Siegfried Gursche “A Tribute to Rhody Lake,” *Alive!* (February 2006), 1.

²¹⁷ Rhody Lake, “Attack on your Right to Alternatives,” *Alive!* (October 2000): 6.

²¹⁸ Rhody Lake, “Attack on your Right to Alternatives,” *Alive!* (October 2000): 6.

²¹⁹ Rhody Lake, “Attack on your Right to Alternatives,” *Alive!* (October 2000): 6.

²²⁰ Rhody Lake, “Attack on your Right to Alternatives,” *Alive!* (October 2000): 6.

of other articles. These magazines brought readers into contact with alternative practitioners through advice columns where readers asked questions about their own health or learn more about the principles of various alternative modalities.²²¹ When access to any one of these modalities was threatened, editorials encouraged readers to “keep writing, phoning, faxing all the usual members of government.” To reach a broad audience both *Alive!* and *Vitality* relied on advertising to fund their efforts and kept their magazines free.²²² Their sustained growth through the 1990s displays the ready audience for this type of information.

Through alternative health magazines, disillusioned patients eagerly learned about alternative modalities from the advertisements, articles, and editorials contained within these publications. Unlike professionals, most of these consumers had relatively little knowledge of the debates for and against combination remedies within the homeopathic community. As a result, readers were exposed to new ideas that may have remained fringe in professional circles, but they encountered them through the alternative press.

Industry published homeopathy guides likewise populated the growing ranks of DTC medical literature. This environment provided an opportunity to pursue directed changes in consumption from the bottom-up. During the growth of DTC homeopathic materials in the early 1990s, nosodes remained confined to the pages of Boiron’s homeopathic guides.²²³

Boiron readily supplied studies, and easy to read homeopathic guides that introduced consumers to the idea of homeopathy with a tilt towards its own commercial imagining of homeopathy. Through its in-house *Editions Boiron* label, Boiron released 6 titles from 1986

²²¹ For an example of this, pick up any issue of *Alive!* and turn to the “Alive Advisor” section.

²²² Only *Health Naturally* charged subscribers, it eventually closed while *Alive* and *Vitality* continue to publish.

²²³ My survey of the magazines turned up no mention of nosodes until 1998.

1998.²²⁴ Many of their guides were written in French for the French market and translated to English after the fact.²²⁵ Usually, these homeopathic guides included an introduction that explained homeopathic theory in a tone designed to sell the practice to its readers. Following the introduction, these guides included an alphabetized list of medicines, with each entry describing the original matter used in creating the remedy and indicating the symptoms for which it could be used.²²⁶

The titles were explicitly framed to attract consumers rather than practitioners. For example, the 1986 guide entitled *The Family Guide to Homeopathy* flagged to consumers that homeopathy can be practised within the family unit rather than through the aid of trained homeopaths.²²⁷ The homeopathic guide sold consumers an idea of homeopathy that included both combination and classical remedies through their inclusion of sections on the theory of combination formulae.

These guides likewise introduced readers to nosodes. Horveilluer's *Family Guide*, for example, includes an influenza entry that states matter-of-factly "to prevent an attack of influenza, take Influenzinum 30 C."²²⁸ Boiron literature, and homeopathic guides in general, retained an educational tone to describe their medicines. As David Herzberg's work on pharmaceutical advertising indicates that the tone of DTC information suggested education, 'educating' consumers was its own form of advertising.²²⁹ Combined with the Coulamy report in 1997, Boiron's efforts to increase Canadian awareness of nosodes culminated in a breakthrough

²²⁴ *Catalogue* (Lyon: Editions Boiron, 1998).

²²⁵ For example, Alain Horvilleur, *The Family Guide to Homeopathy* (Lyon: Editions Boiron, 1986), 135.

²²⁶ This analysis is gleaned from my survey of homeopathy guides from 1985-2005.

²²⁷ Alain Horvilleur, *The Family Guide to Homeopathy* (Lyon: Editions Boiron, 1986).

²²⁸ Alain Horvilleur, *The Family Guide to Homeopathy* (Lyon: Editions Boiron, 1986), 135.

²²⁹ David Herzberg, *Happy Pills in America: From Miltown to Prozac* (Baltimore: John Hopkins University Press, 2009), 41-44.

in the year of 1998. The writers whom they inspired would go on to imagine nosodes as side-effect free alternatives to vaccines.

The Success of Commercial Homeopathy

Despite English Canadian homeopaths lingering resistance to new ideas, the value of Boiron's research as an avenue towards mainstream acceptance could not be ignored. Michael Joiner's work in France indicates a dividing line between older homeopaths, educated before 1980, and a newer generation of homeopaths, educated after 1980. The older homeopaths tended to resist scientific research while the younger generation seemed "dependent on evidential certainty."²³⁰ Such an environment privileged Boiron's research into nosodes and combination remedies.²³¹

My own research has not afforded me the opportunity to make the same strong assertions about a generational divide in Canada. However, the paucity of discussion about nosodes from Canadian sources until 1998, a year after the Coulamy survey, indicates that Boiron succeeded in using avenues of research and education to change English Canadian practitioner's attitudes towards them.

Boiron's efforts had been aided in part by coincidence. The memory of water scandal left the Insitut Boiron with a virtual monopoly of well-funded homeopathic research. Eventually, Boiron's efforts translated into a new generation of homeopaths who participated in DTC homeopathy through articles in *Alive!*, *Vitality* and *Health Naturally*, passing on their knowledge of nosodes to Canadian consumers. After 1998, articles about nosodes in health magazines, and

²³⁰ Michael Joiner, *From Thick to Thin, The Remaking of Homeopathy in France*, 74.

²³¹ Joiner, *Thick to Thin*, 93.

DTC homeopathy books increased markedly.²³² The concerted effort to research and distribute knowledge to young English Canadian homeopaths and homeopathic consumers overcame the conservative inclinations of an older English Canadian homeopathy. By changing the ideas and practices of homeopaths, Boiron successfully ensured a place for nosodes within the burgeoning field of DTC homeopathy and Canadian alternative health magazines.

The articles that grew out of the alternative health magazines are infused with more emotion and argument than Boiron's own DTC guides, because health magazines had a more eclectic audience that did not have specialized knowledge about nosodes. Whereas DTC guides assumed a captive audience of homeopathic practitioners and patients, presenting information more formally, no such calculations were made by the homeopaths who wrote about nosodes in magazines; their diverse audiences meant that authors needed to engage in some degree of persuasion. In additions, establishing oneself as an expert on an emerging vaccine alternative proved to be a lucrative prospect. It should be noted, that while Boiron's efforts to sponsor education and research continued, it was eclipsed by the voluminous materials published in alternative health journals; Boiron's work ceased to be the dominant force over this period. The next chapter explores the ways in which this literature produced sweeping claims that adopted and changed the arguments available to vaccine skeptics.

²³² See my discussion of the first articles published in Canada contained in Chapter 3. Isaac Golden, *Vaccination and Homeoprophylaxis: A Review of the Risks and Alternatives* (Gisborne: Isaac Golden Publication, 2010), 123.

Chapter Three: The Perfect Vaccine, Nosodes in the Media

“Imagine the Perfect Vaccine.”²³³ By 2016, advocates of nosodes boldly extolled their virtues as chemical-free vaccine alternatives. Using the discourse of risk, which incorporated the language of environmentalism and the discourse of choice, while referencing feminism, homeopaths presented nosodes as the perfect alternative to vaccination within English Canada. The road to becoming a true alternative vaccine was facilitated by Boiron’s work within the Canadian homeopathic community and the strong personalities who capitalized on vaccine skepticism to make their careers.

Along the way, advocates buttressed arguments that parents deserved to choose whether to take the risk of vaccinating their child, offering a middle road between natural immunity and vaccination. The nosodes inclusion in Vaccine Choice Canada’s list of recommended readings suggests, the nosode became a powerful tool in the vaccine skeptic community.

Much work has been done on health in the era of risk communication in Canada, which emphasizes “the principles of privatisation and ... individual choice.”²³⁴ Jessica Polzer and Elaine Powers’ recent compilation, *Neoliberal Governance and Health: Duties, Risks, and Vulnerabilities*, includes work surrounding how discourses of risk and choice act in tandem to create “a model of citizenship in which individuals are expected to demonstrate their duties to maintain their health through their own ‘free choices’ and ‘informed decisions.’”²³⁵ By constructing some choices as increasing risk and others as risk-reducing, individuals are

²³³ Cilla Whatcott, “Imagine the Perfect Vaccine,” *Fearless Parent* www.fearlessparent.com March 28, 2016. n.p.

²³⁴ Jessica Polzer and Elaine Powers, eds, *Neoliberal Governance and Health: Duties, Risks, and Vulnerabilities* (Montreal: MQUP, 2017), 6.

²³⁵ Jessica Polzer and Elaine Powers, eds, “Introduction,” in *Neoliberal Governance and Health: Duties, Risks, and Vulnerabilities* (Montreal: MQUP, 2017), 7.

prompted to make the correct choice.²³⁶ So far, little attention has been paid to how resistance to these various discourses of choice and risk are manifested. Nonetheless, Powers and Polzer contend that neoliberal governance remains fragile precisely because the discourse of choice, while used to discipline, leaves choice in the hands of the individual, while individuals are subtly guided to the “correct” choice, people can and do make different calculations.²³⁷ Whereas Ulrich Beck referred to a risk society as “a systematic way of dealing with hazards and insecurities,” I contend that while there may be official responses to risk, there are also unofficial and opposing ways of interpreting and communicating risk.²³⁸

This chapter explores the creation of an opposing discourse of nosodes, which constructed them as a safer alternative to vaccination. The history of nosodes indicates that resistance to the official discourses of risk around vaccination emerged through the creation of new statistics, risks, and choices. Nosodes did not immediately emerge as the perfect vaccine in popular representations. Early articles, starting in 1999 in *Alive!*, *Vitality*, *Health Naturally*, and the *Vaccine Risk Awareness Network* included nosodes as part of long lists of options to boost immunity, including general advice such as taking vitamin C.²³⁹ But even in their early representations, nosodes were described as a comparably safe alternative. Within the discourse on choice and risk, nosodes carried significant medical ramifications. Choosing not to vaccinate carried risks that alternatives could only alleviate so much. Vitamin C, which was said to boost the functioning of the immune system, could not confer immunity. Thus, while an immune

²³⁶ Jessica Polzer and Elaine Powers, eds, “Introduction,” in *Neoliberal Governance and Health: Duties, Risks, and Vulnerabilities* (Montreal: MQUP, 2017), 10.

²³⁷ Jessica Polzer and Elaine Powers, eds, “Introduction,” in *Neoliberal Governance and Health: Duties, Risks, and Vulnerabilities* (Montreal: MQUP, 2017), 29.

²³⁸ Ulrich Beck, *Risk Society: Towards a New Modernity*. (New Delhi: Sage, 1992), 21.

²³⁹ Zoltan Rona, “International Travel and Vaccinations,” *Health Naturally* 7 (August/September 1999): 38.

system could be strengthened, it nonetheless remained susceptible to the childhood diseases vaccines that protected against.

Nosodes allowed for risk-based arguments that tipped the balance away from vaccines by supposedly giving children immunity without any side effects. The enduring popularity of lists of vaccine alternatives indicates that a minority of parents understood the risks of preventable diseases but perceived vaccines as risky as well. Nosodes reframed the argument around two different immunity conferring technologies-- the risky vaccine and the risk-free nosode--which over time became a staple argument in vaccine skepticism. But risk and choice also included a social element: whose choice, whose risk?

Many opponents of vaccine skeptics shamed the selfishness of those who weakened herd immunity. Nosodes offered a respite from these claims. If one's child received homeopathic immunity while side stepping the risks of vaccination, the parent could reasonably argue that they were doing their part. The choice between vaccines and nosodes allowed proponents to frame the individual nature of the choice to vaccinate in a way that natural immunity could never attain.

This chapter uses alternative health magazines and mainstream newspapers as the main sources for analysis. In the mainstream press, magazines are important in the study of risk and choice discourse as, in communicating scientific research, "magazines combine expert and lay

understandings to construct ... messages about health.”²⁴⁰ They also allow scientific knowledge to be communicated as to “create and mediate [medical] realities.”²⁴¹

In alternative health magazines, a similar truth-making process takes place. While the knowledge base is different, sometimes radically so, the surveyed magazines have their own experts to answer reader questions and to blend new books and research (of varying quality) to construct their own medical realities. In this way, alternative magazines reframed risk and choice to push back against exercise of neoliberal power that occurred through the mainstream press.

Beginning in 1998, nosodes were not only offered by homeopathic companies, but also championed by other supporters. To begin with, nosodes simply made up a part of several treatment options. With the publication of several academic articles on homeoprophylaxis, a pseudo-scientific term indicating the preventive use of nosodes, the use of nosodes for prophylactic purposes became a key debate in homeopathic literature. Nonetheless, the nosode was first constructed simply as one of several alternatives to vaccination.

The main discourses created around nosodes include: *nosodes as alternatives to vaccines*, which was the primary argument circulated from 1998-2005, *nosodes as risk-free and effective*, which were the primary arguments circulated from 2005-2010, and *nosodes as purveyors of a natural herd immunity*, which was the primary arguments circulated from 2010-2018. Each argument appeared roughly in this chronological order and all interacted to bolster the fundamental argument that nosodes acted as alternatives to vaccines.

²⁴⁰ Laura Cayen, Jessica Polzer and Susan Knabe, “Tween Girls Human Papillomavirus (HPV), and the Deployment of Female Sexuality in English Canadian Magazines,” in *Neoliberal Governance and Health: Duties, Risks, and Vulnerabilities* edited by Jessica Polzer and Elaine Powers (Montreal: MQUP, 2017) ,94.

²⁴¹ Laura Cayen, Jessica Polzer and Susan Knabe, “Tween Girls Human Papillomavirus (HPV), and the Deployment of Female Sexuality in English Canadian Magazines,” 94.

In the wider discourse of vaccine skepticism, nosodes drew on the discourse of *vaccination as risky*. With the established risks of disease and vaccination, the risk-free nosode became an important tool to tilt the balance of risks in favour of skipping vaccination, creating new choices for the vaccine hesitant to ponder.

Nosodes as Alternatives to Vaccines

Dr. Zoltan Rona became one of the earliest champions of nosodes. Rona earned his degree in medicine in 1977 at McGill before completing a master's in nutrition at the University of Bridgeport in Connecticut 7 years later.²⁴² Rona's involvement in competitive tennis at the time of his master's led him towards natural health. Frustrated with what he saw as "patching things up," he searched for ways to prevent wear and tear on his body.²⁴³ Along the way, Rona discovered that others shared his passion for natural medicine, and he looked to capitalize on this growing interest.

Starting in the 1990s, Rona began to write prodigiously. His first book, released in 1991, *The Joy of Health: A Doctor's Guide to Alternative Medicine*, became a Canadian bestseller.²⁴⁴ Rona ultimately published eleven books, including a sixty-two paged book *Natural Alternatives to Vaccination*, which devotes a section to nosodes and emphasizes the "legal right to refuse" vaccinations.²⁴⁵ Due to the success of *Natural Alternatives*, *Alive! Books*, the publisher of *Alive!* magazine, and alternative health magazine, released a second edition in 2002.²⁴⁶

²⁴² Zoltan P. Rona, *The Joy of Health A Doctor's Guide to Alternative Medicine* 2nd ed. (Woodbury: Llewellyn Publications, 1995), i-iv.

²⁴³ Andrea Donsky "Dr. Zoltan Rona," *Naturally Savvy*. Naturallysavvy.com.

²⁴⁴ Zoltan P. Rona, *The Joy of Health A Doctor's Guide to Alternative Medicine* 2nd ed. (Woodbury: Llewellyn Publications, 1995), i-iv.

²⁴⁵ Zoltan Rona, *Natural Alternatives to Vaccination* (Vancouver: Alive Books, 2000), 19.

²⁴⁶ Rona, *Natural Alternatives*, 2nd ed. (Vancouver: Alive Books, 2002).

Rona began researching and writing about nosodes in 1999 after receiving a letter from ST (a full name is not given in the magazine) asking about the necessity of travel vaccines. Only a year before, *Vaccine Choice Canada* published Golden's research from Australia. Rona, a board member, drew on this knowledge in crafting a response. ST felt that her daughter had been urged on by doctors to risk the potential harms of vaccination without being presented alternatives. For one of the first times in Canada, a popular health advice columnist gave tips not only on boosting her daughter's immunity, but on equipping her immune system to fight against specific diseases.²⁴⁷

Rona's response, found in *Health Naturally*, invoked a sort of apology for his alternatives noting that "neither conventional nor alternative immunization strategies offer 100 percent protection."²⁴⁸ This language relies on the language of risk to establish credibility. He is not claiming to have found a magic bullet. It also serves to deflect blame away from the potential failure of his chosen alternatives. Moreover, he notes that while "good anecdotal evidence [supports] vaccine alternatives," there are no studies that back his choices.²⁴⁹ But, in the same breath, he mentions that determining the superiority of mainstream or alternative methods of acquiring immunity is impossible.

Once his disclaimers were out of the way, however, he lists six alternatives beginning with nosodes. While its placement on the list may be coincidental, the fact that it is the first alternative listed suggests that Rona may have identified nosodes as the primary alternative.

As one of his first attempts to articulate the potential to avoid vaccination through nosodes, his section on them is brief. Nosodes take up only 50 words of the 750-word response.

²⁴⁷ Zoltan Rona, "International Travel and Vaccinations," *Health Naturally* 7 (August/September 1999): 38.

²⁴⁸ Rona, "Travel Vaccines," *HN*.

²⁴⁹ Rona, "Travel Vaccines," *HN*.

The other sections on sugar free diets, bovine colostrum, probiotics, enzymes, and interferon boosters are almost twice as long. Nonetheless, this preliminary acknowledgement already harnesses and transforms the arguments of the anti-vaccine movement by presenting it as replacement for vaccines.

Like other vaccine skeptics, Rona focused on natural immunity-building and the risks of vaccines. Whereas vaccines include adulterated versions of the virus and adjuvants, the nosode contains no crude virus but rather the *true* “molecular imprint” of it.²⁵⁰ He argued that nosodes allowed the immune system to acquire immunity without the risk of being exposed to any dangerous pathogens.

He did not stop there, however. When describing the nosode, he declared it a “direct vaccine alternative” – the only entry on the list denoted as such.²⁵¹ In other words, the other options, while alternatives, do not possess the same ability to replace vaccines. Among the choices for alternatives, he believed nosodes stood apart as a one-to-one replacement for vaccines. While he ultimately did not push this point in his first response, Rona conceived of the nosode as special.

For the next three years, Rona and others wrote about nosodes in *Alive!*, *Health Naturally*, *Vitality* and the *Vaccine Risk Awareness Network* to promote his book on vaccine alternatives. Some of these articles stressed the risks of vaccination pointing to the \$500,000,000 paid out by the American *Vaccination Injury Compensation Program* during its first five years of operation.²⁵² Elsewhere, writers emphasized parents’ right to choose, stating that parents who

²⁵⁰ Rona, “Travel Vaccines,” *HN*.

²⁵¹ Rona, “Travel Vaccines,” *HN*.

²⁵² Zoltan Rona, “Vaccination Alternatives,” *Vitality* (September 2000): 84. In this article, the editor used the homeopathic nosode as a pull quote for the story.

dedicate “countless hours” to researching the risks of vaccines, may know more about the risks and benefits than medical authorities, who base their claims on blind faith in vaccination.²⁵³ Regardless of whether they stressed risks or choice, early writings introduced the public to by describing them as *alternatives* to vaccination.

Nosodes as Risk-free and Effective

For several years, interest in vaccine alternatives remained in the pages of alternative health magazines, but in 2003 their impact widened. Outbreaks of severe acute respiratory syndrome (SARS) in 2003 and avian influenza in 2004-2005 created a new opening for discussing nosodes²⁵⁴ since both outbreaks reinforced the risks of diseases like influenza.²⁵⁵

The mainstream press used this increased awareness of flu risks as an opportunity to stress the need for flu vaccination. *The Globe and Mail* released a special question and answer segment in November 2004 to inform readers of the benefits of the flu shot and the lack of alternatives. In the article, journalist André Picard answered questions about alternatives to needles, and informed inquisitive readers that “vaccines don’t come in pill form ... there is no alternative.”²⁵⁶ Readers likewise wanted to know if the influenza vaccine protected against avian flu; Picard informed them that this was not the case, but that they should get the vaccine nonetheless.²⁵⁷ The only alternatives to the vaccine that Picard discusses are “frequent

²⁵³ Zoltan Rona, “Flu Shots: The Dark Side,” *Health Naturally* (March 1999): 30.

²⁵⁴ *Learning From SARS*, (Ottawa: Public Health Agency of Canada, 2004), 15.

²⁵⁵ *Statement on Influenza Vaccination for the 2003-2004 Season*, (Ottawa: Public Health Agency of Canada, 2003), 1.

²⁵⁶ André Picard, “Q and A: The Flu,” *The Globe and Mail* (Nov 12, 2004): A17. Another article on the topic: Carolyn Abraham, “Entire World Should Receive Avian-Flu Shots,” *The Globe and Mail* (Nov 10, 2004): A7

²⁵⁷ André Picard, “Q and A: The Flu,” *The Globe and Mail* (Nov 12, 2004): A17.

handwashing ... maintaining good general health ... and not kissing anyone with a runny nose.”²⁵⁸

Epidemics stressed the risks of disease creating both an uptick in interest in vaccines and vaccine alternatives. In stark contrast to the mainstream press, the alternative press stressed that alternatives to vaccination did exist. Homeopaths turned their attention to nosodes. For many people, they wished to know that the vaccines they were receiving were not more harmful than the diseases themselves. This heightened sense of risk pushed supporters of nosodes to highlight their risk-free nature, while also creating a space for the nosode’s radical implications to stand alone in specialized articles, though these articles remained confined to the pages of alternative magazines.

Homeopaths desire to establish nosodes as a true vaccine alternative meant constructing them as risk-free in relation to vaccines. The first writings attempted to show nosodes as risk-free by showing that the nosode did not inflict harm. Rona repeatedly remarked that nosodes did not contain any virus but the “true molecular imprint of it.”²⁵⁹ An article in *Vitality* from 2005, written in the wake of the avian flu epidemic scare, noted that homeopathic immunizations are “repeatedly diluted ... making them safe and free from drug side effects.”²⁶⁰

The argument of safety received a boost from the work of Isaac Golden. Isaac Golden, an Australian homeopath and researcher, spent fifteen years collecting data on homeoprophylaxis culminating in his doctorate, completed in 2004. He used this research to create *Vaccination and*

²⁵⁸ Ibid.

²⁵⁹ Rona, “Travel Vaccines,” *HN*.

²⁶⁰ Soulla Kallinis, “Homeopathy for Influenza, *Vitality* (March 2005): 54.

Homeoprophylaxis: A Review of Risks and Alternatives.²⁶¹ Though he was in favour of the use of nosodes, it was not until the seventh edition, released in 2010, that he tried to reach out directly to parents, which was specifically designed to educate them on the safety and effectiveness of the nosode.²⁶² Compared to the sixth edition from 2008, the 2010 seventh edition, pushed much of the quantitative research to the last chapter or appendices at the end of the work. Golden's own persuasive arguments, including a decision tree, (see appendix, "Flow Chart") populated the early chapters of the book.

Golden's dissertation used a survey filled in by participants to assess the relative effectiveness and safety of vaccines and nosodes. Golden sorted surveys based on whether children were vaccinated or whether they used nosodes. Then, he informally collected information on health problems and side effects between the two groups to assess the whether vaccines or nosodes posed more harm. Finally, he used survey information to determine whether a child had "definitely exposed to disease" to a variety of childhood diseases and whether the child had contracted the illness.²⁶³ For example, in 100 people, if 91 people "definitely exposed to disease" did not get it when exposed to the disease, that would result in an efficacy of 91 percent.²⁶⁴ But, as with Boiron's Coulamy report, the survey-based information gathering posed significant drawbacks with parents filling in the information rather than Golden. Nor does he

²⁶¹ Isaac Golden, *Vaccination and Homeoprophylaxis: A Review of the Risks and Alternatives*, Seventh ed. (Gisborne: Isaac Golden Publication, 2010), ii. Homeoprophylaxis is a term indicating the use of nosodes to prevent disease.

²⁶² Isaac Golden, *Vaccination and Homeoprophylaxis: A Review of the Risks and Alternatives*, Seventh ed. (Gisborne: Isaac Golden Publication, 2010), ii

²⁶³ Isaac Golden, *Vaccination and Homeoprophylaxis: A Review of the Risks and Alternatives* (Gisborne: Isaac Golden Publication, 2010), 61.

²⁶⁴ See appendix for the "Homeoprophylaxis" chart that uses these terms

explain how he assigned children to the category of “definitely exposed to disease” rendering the information unreliable.²⁶⁵

Like those before him, Golden drew upon the homeopathic principles of the law of similar and the law of infinitesimal dose to show that nosodes are harmless. Golden points out that both homeopaths and conventional physicians agree that nosodes contain “nothing.”²⁶⁶ Because they contain nothing, nosodes have no ability to cause side effects.

He also supports this claim through his research. Golden administered doses of nosodes for a variety of childhood illnesses to over two thousand children. According to him, the only reactions provoked by nosodes were allergic reactions to the sugars and starches. As for serious reactions, he states that “there is zero possibility of a crude toxic reaction.”²⁶⁷

Vaccines, Golden emphasized, however, do provoke side effects. To make this point, Golden spent close to a third of his words on the variety of side-effects caused by vaccines. He includes some which are well established, like sore arms, low grade fevers, and anaphylactic shock, and others which have very little support, including autism. Over half a dozen times he mentions, “VACCINES ARE NOT COMPLETELY EFFECTIVE NOR COMPLETELY SAFE.”²⁶⁸ He points out that even without vaccines some people do not contract disease. In effect, he argued, some people are getting vaccines when they would not contract the disease

²⁶⁵ Ibid.

²⁶⁶ Isaac Golden, *Vaccination and Homeoprophylaxis: A Review of the Risks and Alternatives* (Gisborne: Isaac Golden Publication, 2010), 3.

²⁶⁷ Isaac Golden, *Vaccination and Homeoprophylaxis*, 100.

²⁶⁸ Isaac Golden, *Vaccination and Homeoprophylaxis: A Review of the Risks and Alternatives* (Gisborne: Isaac Golden Publication, 2010), 4, 6, 80-110.

anyway. Meaning that some people are exposed to vaccine risks when they would not derive any benefit.²⁶⁹

Golden also resorts to environmentalism to explain vaccine side-effects, while framing them in a way that paints the nosode in a positive light. Stoking the same chemophobia induced by the environmental effects of substances like DDT, he uses the spectre of toxic chemicals to argue that vaccines are inherently dirty. Vaccines include a “crude dose” of viral matter in opposition to the nosode’s “energetic dose.”²⁷⁰ Golden also notes that vaccines inject chemical adjuvants, such as aluminum which “[enter] the bloodstream almost directly, bypassing the outer immunological defences.”²⁷¹ For Golden, the vaccines represented the same heroic medicine that Hahnemann, founder of homeopathy, had rejected a century earlier.

Through his survey, he also established a difference in the long-term risks of the two regimes. Parents recorded vaccination or homeoprophylaxis status and whether their child developed several conditions. Using their answers, he claimed that in “19 of 20 measures of health” including asthma, ear infections, and mental development “vaccinated children were less healthy.”²⁷² A graph of these observation can be found in the appendix (Table of Health Markers). Through his creations of statistics, the risk-free nature of nosodes received a scientific treatment.

²⁶⁹ Isaac Golden, *Vaccination and Homeoprophylaxis: A Review of the Risks and Alternatives* (Gisborne: Isaac Golden Publication, 2010), 4, 6, 80-110.

²⁷⁰ Isaac Golden, *Vaccination and Homeoprophylaxis: A Review of the Risks and Alternatives* (Gisborne: Isaac Golden Publication, 2010), 33.

²⁷¹ Isaac Golden, *Vaccination and Homeoprophylaxis: A Review of the Risks and Alternatives* (Gisborne: Isaac Golden Publication, 2010), 42.

²⁷² Isaac Golden, *Vaccination and Homeoprophylaxis: A Review of the Risks and Alternatives* (Gisborne: Isaac Golden Publication, 2010), 123. Unlike with other sections, I am unable to offer my analysis as to why this is. I simply do not know why this discrepancy exists.

Golden's claims came to Canada through articles written about his research in alternative health magazines, but he also gave talks in Canada from 2010 to 2015. Riverdale Homeopathy, a Toronto homeopathic clinic saw enough interest in nosodes Golden's work to invite Golden in 2012 and again in 2014.²⁷³ In Vancouver, Little Mountain Homeopathy invited Golden on multiple occasions from 2012 to 2015.²⁷⁴ Each of their talks was advertised to an audience of people with doubts about vaccination. Every article and visit contributed to the notion that nosodes remained risk-free.

But becoming risk free likewise meant homeopaths had to show nosodes were as effective as vaccines. If nosodes did not protect against disease, then the risk of disease remained. The first such claim appears in a 2005 *Vitality* article "Homeopathy for Influenza," which focussed on the nosode *Influenzinum*, created by homeopathically preparing the years flu strains. The article drew upon research claiming similar effectiveness of the nosodes to conventional and referenced the Coulamy report and a flawed Boiron sponsored study, to claim that Influenzinum protected 90% of those to which it was administered.²⁷⁵

In *Alive!*, a 2006 article entitled "Homeopathic Ammunition to Fight Flu" used history to establish the effectiveness of nosodes. Drawing on the 1918 Spanish flu to make its case, the article stated that while homeopathic hospitals had a death rate of "1 percent or fewer" conventional hospitals reported a death rate of "2.5 to 10 percent."²⁷⁶ As mentioned in chapter

²⁷³ "Evidence, Immunisation, and Treating Vaccine Damage," *Riverdale Homeopathy* September 1, 2013. (Archived press release) www.riverdalehomeopathy.com accessed November 12, 2018. "Learn about Vaccine Alternatives, Kate Birch," *Riverdale Homeopathy*, August 31st, 2013. (Archived press release) www.riverdalehomeopathy.com accessed November 12, 2018.

²⁷⁴ Soyna McLeod, "About Homeopathic Nosodes/Homeoprophylaxis," *Little Mountain Homeopathy*, (Archived informational post) www.littlemountainhomeopathy.com accessed November 21, 2018.

²⁷⁵ Soulla Kallinis, "Homeopathy for Influenza, *Vitality* (March 2005): 54.

²⁷⁶ Nicole Duelli, "Homeopathic Ammunition to Fight Flu," *Alive!* (September 2006): 71-72.

two, much of this discrepancy comes from the fact that homeopathic clients were healthier and wealthier than the average person.²⁷⁷

Golden's 2010 work was effective at establishing the efficacy of nosodes as well. Through his work, he established that his homeoprophylaxis schedule had an effectiveness of around 86.2 percent to 91.6 percent, depending on the nosode used.²⁷⁸ His statistics were based on numbers that estimate the number of his patients that were "definitely exposed to diseases" and compared the number who fell ill to the number who stayed healthy.²⁷⁹ For example, for the measles' nosode, Golden claimed a 90 percent efficacy rate, meaning that for every 100 people exposed to measles 90 of people who used the measles nosode would be protected and 10 would still fall ill.²⁸⁰ As noted, these numbers cannot be taken at face value. Golden does not disclose how he determined who was "definitely exposed to disease" reducing the weight of his evidence.²⁸¹

Additionally, his research diverges from much scientific work in Golden's frequent references to history to underline his point. Starting with the founder of homeopathy, Samuel Hahnemann, Golden traces seventeen references on the use of homeopathy as a prophylactic method. Each reference includes data about the use of nosodes and personal testimony of practitioners and creates short narratives about nosodes. For example, he includes the history of the smallpox nosode *variolinum*, focusing on the narrative of American homeopath Dr. CW Eaton, who claimed it had an efficacy of 97.5%. At the turn of the century, Eaton began using

²⁷⁷ John Haller, *The History of American Homeopathy: The Academic Years*, (New York: Pharmaceutical Products Press, 2005), 1-10.

²⁷⁸ Isaac Golden, *Vaccination and Homeoprophylaxis: A Review of the Risks and Alternatives* (Gisborne: Isaac Golden Publication, 2010), 60.

²⁷⁹ Isaac Golden, *Vaccination and Homeoprophylaxis: A Review of the Risks and Alternatives* (Gisborne: Isaac Golden Publication, 2010), 61.

²⁸⁰ Ibid.

²⁸¹ Ibid, 89. See appendix, Table of Efficacy.

potentized smallpox material to prevent the disease. Finding it remarkably successful, he asked skeptical colleagues to administer the smallpox nosode to patients and record their experiences. His colleagues were stunned at the results. When presenting the results to the American Institute of Homeopathy, he pleaded for the rest of his fellows to accept the practice despite it seeming “strange.”²⁸² Eaton’s story, and others are used to create an historical narrative of nosodes.

The creation of a historical narrative of nosodes worked on multiple levels. For alternative medicine users, who were accustomed to appeals to tradition, the creation of a nosode narrative provided the necessary gravitas of other traditional remedies.²⁸³ As well the narrative mirrored the history of the vaccine in its length of use. Golden’s first reference is from 1801, making nosodes appear only 7 years younger than the famous Jenner vaccine for smallpox.²⁸⁴

The writing and contesting of the history of vaccines has been an important strategy in the campaign to increase or decrease uptake in vaccination. Anti-vaccine activists, like Harris Coulter and Barbara Fisher have combined histories of disease to argue links between vaccines and chronic conditions, linking the historical rise in the number of vaccines to rising allergy rates and behavioural problems.²⁸⁵ Pro-vaccine activists, like Paul Offit and Louis Bell, used history to emphasize the decreased risk of death and other complications from vaccine preventable diseases that vaccines offered.²⁸⁶ Golden engaged in this process of (re)writing vaccine history by adding a competitor to vaccination into the historical record. Through Golden’s work, nosodes were

²⁸² Isaac Golden, *Vaccination and Homeoprophylaxis: A Review of the Risks and Alternatives* (Gisborne: Isaac Golden Publication, 2010), 362.

²⁸³ John Haller, *The History of American Homeopathy: The Academic Years*, (New York: Pharmaceutical Products Press, 2005), 1-10. For information on the use of history as evidence in alternative medicine see, James Whorton, *Nature Cures: The History of Alternative Medicine in America* (New York: Oxford University Press, 2002).

²⁸⁴ Peter Razzell, *Edward Jenner’s Cowpox Vaccine: A History of a Medical Myth* (London: The Caliban Press, 1976), 7.

²⁸⁵ Harris L. Coulter, *A Shot in the Dark: Why the P in DPT Vaccination may be Hazardous to your Child’s Health* (New York: Avery, 1985).

²⁸⁶ Paul Offit, Louis Bell, *Vaccines: What Every Parent Should Know* Macmillan (London, MacMillan, 1999).

framed as risk-free vaccine alternatives with an effectiveness and history of use almost as long as vaccines.²⁸⁷

Nosodes as Purveyors of a Natural Herd Immunity

Nosodes needed to be more than just effective and risk free. On the side of vaccine skeptics, the discourse of natural immunity meant that nosodes would face suspicion. If nosodes operated the same as vaccines, they might provoke similar problems. Nonetheless, the promise of herd immunity and protecting the community were persuasive reasons to vaccinate. Following on the coattails of Golden's research homeopaths, Cilla Whatcott and Kate Birch sought to expand the discourse of benefits to include the claim that nosodes could provide a natural herd immunity.²⁸⁸

Kate Birch and Cilla Whatcott came to homeopathy through their skepticism of vaccines. Since the 1990s, the two practiced as homeopaths in the United States. Whatcott adopted three developmentally delayed children.²⁸⁹ The lack of progress in their behaviour through mainstream medical interventions pushed her towards seeking alternatives.²⁹⁰ In 2008, after several years of practicing as a homeopath, she latched onto Golden's research, coming to believe that her children were harmed by vaccines and decided to spread information about homeoprophylaxis around the globe.²⁹¹

From 2005-2008 Birch served as the Vice President of the for the *North American Society of Homeopaths*. In this senior role, she published *Vaccine Free Prevention & Treatment*

²⁸⁷ Isaac Golden, *Vaccination and Homeoprophylaxis: A Review of the Risks and Alternatives* (Gisborne: Isaac Golden Publication, 2010), 362.

²⁸⁸ "Kate Birch," Whole Health Biography Database www.wholehealthnow.com Accessed June 18, 2019.

²⁸⁹ Cindi Lash, "More U.S. Adoptions of Russians Fail," *Pittsburgh Post Gazette* August 13, 2000, D3.

²⁹⁰ Cindi Lash, "More U.S. Adoptions of Russians Fail," *Pittsburgh Post Gazette* August 13, 2000, D3.

²⁹¹ "Kate Birch," *Whole Health Biography Database* www.wholehealthnow.com Accessed June 18, 2019. "Cilla Whatcott," *Whole Health Biography Database* www.wholehealthnow.com Accessed June 18, 2019.

of *Infectious Contagious Disease with Homeopathy: A Manual for Practitioners and Consumers* to advance try and increase the awareness of homeoprophylaxis.²⁹² In 2010, she co-authored with Whatcott *The Solution – Homeoprophylaxis: The Vaccine Alternative*.²⁹³ The success of their book led them to start doing international lectures on the subject. While Golden, Birch, and Whatcott had different pasts, they all came to the same conclusion – educating parents about the use of nosodes as vaccine alternatives was an important career option.

Unlike those before them, Whatcott and Birch invested more time and money into the success of nosodes. Together the pair founded *World Wide Choice* and *Free and Healthy Children*, non-profits that educated parents and homeopaths on homeoprophylaxis.²⁹⁴ While the organizations remained non-profit, the website directed people who wished to receive nosodes to Birch, Whatcott and a directory of other homeopaths who provided the service for an annual fee.²⁹⁵ Like Golden, Birch and Whatcott lectured across Canada through association with local homeopathic clinics; the Riverdale Homeopathy, which had invited Golden, also invited Birch to give a talk in Toronto in 2012.²⁹⁶ In Vancouver, Little Mountain Homeopathy invited Cilla Whatcott on multiple occasions from 2013 to 2015.²⁹⁷

Drawing on the anxieties of parents about the risks of diseases and vaccines, Whatcott and Birch, in their 2010 co-authored book, set up nosodes as “The Solution” to the spectre of

²⁹² “Past Board Members,” *North American Society of Homeopaths* www.homeopathy.org accessed June 2, 2019.

²⁹³ Kate Birch and Cilla Whatcott, *The Solution – Homeoprophylaxis: The Vaccine Alternative* (Carlsbad: Balboa Press, 2010).

²⁹⁴ “About Us,” *World Wide Choice* www.worldwidechoice.org accessed February 3, 2019. “History of FHCI” *Free and Healthy Children International* www.freeandhealthychildreninternation.com accessed February 10, 2019.

²⁹⁵ “Find an HP Practitioner,” *Free and Healthy Children International* www.freeandhealthychildreninternation.com accessed February 10, 2019.

²⁹⁶ “Evidence, Immunisation, and Treating Vaccine Damage,” *Riverdale Homeopathy* September 1, 2013. (Archived press release) www.riverdalehomeopathy.com accessed November 12, 2018. “Learn about Vaccine Alternatives, Kate Birch,” *Riverdale Homeopathy*, August 31st, 2013. (Archived press release) www.riverdalehomeopathy.com accessed November 12, 2018.

²⁹⁷ Soyna McLeod, “About Homeopathic Nosodes/Homeoprophylaxis,” *Little Mountain Homeopathy*, (Archived informational post) www.littlemountainhomeopathy.com accessed November 21, 2018.

vaccine risks – the solution to the scorn of pro-vaccine relatives; the solution to the problem of preventable disease; the solution which, as it happens, is homeoprophylaxis.²⁹⁸

Framing the argument around the immune system, they discussed nosodes safety and effectiveness while also introducing novel arguments to appeal to the cautious supporters of vaccines and the skeptics. They argued that catching a disease aids in childhood development, thus reinforcing the idea that natural immunity is desirable. In a child, they argued the immune system begins without any sense of invaders. To mature, it must determine “what is self, and what is non-self.”²⁹⁹ This development is aided by childhood disease. They also argued that personality-wise disease aids in the child developing a sense of self and non-self:

“Understanding personal boundaries, the ability to learn and emotional regulation is intricately dependent upon the immune system ... often when disease strikes we see huge jumps in the development of the child.”³⁰⁰

Such a view meant that vaccination is inherently detrimental to children, depriving them of the development of self, causing developmental delays. Any system that hoped to prevent disease then, should take care not to throw out the baby’s development with the virally loaded bathwater, so to speak.

Their solution was to allow parents to choose homeoprophylaxis. In the language of risk, they established the fundamentally innocuous nature of nosodes through absence--they are chemical-free, adjuvant-free, provoke no tears, and carry no risk, they proclaimed.³⁰¹ Moreover, because they carry a minute dose of the “actual disease,” they claimed that “nosodes still educate

²⁹⁸ Kate Birch and Cilla Whatcott, *The Solution – Homeoprophylaxis: The Vaccine Alternative* (Carlsbad: Balboa Press, 2010).

²⁹⁹ Birch and Whatcott, *Homeoprophylaxis*, 31.

³⁰⁰ Birch and Whatcott, *Homeoprophylaxis*, 37.

³⁰¹ Birch and Whatcott, *Homeoprophylaxis*, 37.

the immune system in determining self from non-self,” allowing for the development of a normal baby, they contended.³⁰² Their argument was that unlike vaccines which worked against healthy development, nosodes acted in concert with so-called natural disease processes. Because natural immunity had acquired a central place in the arguments of many vaccine skeptics, framing nosodes as working with natural immunity was an important step in increasing nosodes acceptability.

Perhaps their most important argument was that homeoprophylaxis contributed to the building of herd immunity. If nosodes did not provide herd immunity nosodes could not truly exist on the same footing as vaccines. This argument primarily sought to appeal to those who remained hesitant but receptive to vaccines, as these parents generally saw value in protecting the community through vaccines.

To appeal to hesitant parents who leaned towards vaccines, Whatcott and Birch sympathized with this audience:

“Surely the intentions of doctors and scientists were noble in protecting us from disease but have [parents] become short-sighted in our tolerance of the growing list of side-effects ... the result [of vaccinations] is confusion about whether the disease is in fact foreign material, and if it is, what to do with it. If [your child’s] immune system is not given the opportunity to naturally interact with a virus or bacteria, will it still be able to recognize offending agents?”³⁰³

In effect, they argued that while the goals of vaccination are noble – sparing parents from watching their child suffer, sparing the child from unnecessary suffering, and protecting those who are weak – the result is a weakened immune system and side effects. At the same time, they claimed that nosodes grant natural immunity while protecting others with a mechanism similar to

³⁰² Birch and Whatcott, *Homeoprophylaxis*, 52.

³⁰³ Birch and Whatcott, *Homeoprophylaxis*, 52.

herd immunity, a phenomenon they called the morphogenetic field. Whatcott and Birch adopted this biological concept, which refers to the biochemical signals that allow embryos to create specialized organs,³⁰⁴ and gave it a new meaning:

Individuals each possess their own field that may be energetically stimulated [by nosodes], while families, cultures, races, and nationalities share larger fields. If the individual field is stimulated in one instance, the rest of the population is affected. In this way ... disease incidence is reduced individually and collectively. This creates a *true herd immunity*.³⁰⁵ Emphasis added.

This radical repurposing of the term morphogenetic field was used to resist the concept of vaccine-based herd immunity and argue for so-called natural herd immunity, though they give no scientific references for their ideas.³⁰⁶ In proposing natural herd immunity, Birch and Whatcott also reworked anti-vaccination discourses that actively disparaged herd immunity, likening the word to herd thinking, or ignored herd thinking in favor of focusing on individual choice. For example, homeopath Randall Neustaedter's 2002 *Vaccine Guide* posed the question "are you willing to sacrifice your child to fulfill a public health official's [herd immunity] objectives?"³⁰⁷ Unlike Rona and Neustaedter, whose arguments focussed on parents, Birch and Whatcott's idea of herd immunity was directed at a societal level, which allowed them to appeal to a broader range of vaccine hesitant parents.

When added to the prevailing discourse of choice surrounding vaccine skeptic literature, this appeal to the community allowed the reconciliation of individual skepticism and collective responsibility. Following Birch and Whatcott's work, a parent could individually choose not to

³⁰⁴ SF Gilbert, *Developmental biology 7th ed* (Sunderland, Mass: Sinauer Associates, 2003), 65–6.

³⁰⁵ Birch and Whatcott, *Homeoprophylaxis*, 57. The passage demonstrates that the heritage of scientific racism by pointing to distinct fields for what are socially constructed entities.

³⁰⁶ In my attempts to find out where they came up with this idea, I found no sources that make this claim.

³⁰⁷ Randall Neustaedter, *The Vaccine Guide: Risks and Benefits for Children and Adults* (Berkeley: North Atlantic Books, 2002), 16.

vaccinate their child and still claim that they were protecting the community through the use of nosodes. This construction promised to alleviate parents of the twin anxieties of leaving their child exposed to disease on the one hand, and the shame of leaving their community at risk, on the other.

It took 182 years after Constantine Hering introduced nosodes for arguments about herd immunity to be made. However, in a few short years, Whatcott distilled the 124-page argument into just 719 words. “Imagine the Perfect Vaccine,” a 2016 blog post by Whatcott, focused on the radical implications of the nosode for disease and herd immunity.³⁰⁸ Unlike vaccine skeptics before her who focused on fears of risks to argue against vaccinations, Whatcott spoke constantly about the ways in which nosodes addressed these concerns that freed parents from worry. Whatcott put her argument about herd immunity front and centre. Like vaccines, she says, the goals of homeoprophylaxis are: “safety, protection, and social responsibility.”³⁰⁹ Pairing the nosode with the values of vaccination represented perhaps the most persuasive iterations of the discourse of choice. It allowed the choice between nosodes and vaccines to be free from the social pressures that marked parents’ anxieties about anti-vaccination. Those who chose nosodes could claim to be pursuing the same community-focused goal -- immunity.

The works of Rona, Kallinis, Duelli, Golden, Birch, Whatcott participated in a reshaping of the risks and rewards of vaccination. They created another strand of argumentation that existed in parallel with the wider vaccine skeptic movement. However, in the radical claim that nosodes contributed to herd immunity, vaccine skeptics gained their greatest weapon, a method of immunization that resembled vaccination in every way except risk. As a testament to the success of their work, nosodes entered into the Canadian vaccine skeptic community. The

³⁰⁸ Cilla Whatcott, “Imagine: The Perfect Vaccine,” *Fearless Parent* www.fearlessparent.org.

³⁰⁹ Cilla Whatcott, “Imagine: The Perfect Vaccine,” *Fearless Parent* www.fearlessparent.org

Vaccine Risk Awareness Network (*Vaccine Choice Canada* or VCC since 2012) quarterly newsletters discussed the nosode several times since 1998.³¹⁰ VCC also included Rona's book on vaccine alternatives in the resources section of its quarterly newsletters after its first inclusion in the Spring 2000 issue. VCC listed two other books alongside Rona's that covered nosodes: Leon Chaitow's *Vaccination and Immunization: Dangers, Delusions, and Alternatives* and Randall Neustaedter's *The Vaccine Guide: Risks and Benefits for Children and Adults*.³¹¹

Following the promotion by Birch and Whatcott, nosodes gained greater traction within the vaccine skeptic community. In 2012, VCC produced *The New Parents' Guide*, an introductory document for vaccine hesitant parents. A section on tips to avoid vaccine damage tells parents to "consider homeopathic immunizations."³¹² In the resources section, it directs parents to the *Health Action Network Society* to research on homeopathic options and practitioners certified to offer homeoprophylaxis (linked to Birch and Whatcott) saying it can "help ease many fears."³¹³ Not only did homeopaths try and convince vaccine skeptics, the VCC's adoption of resources on nosodes indicate that they succeeded in incorporating nosodes into the organized anti-vaccine movement.

The "STOP THE NOSODE" Campaign

The success of nosodes did not garner the attention of the mainstream scientific medical community. For those fighting anti-vaccine sentiment, the spectre of junk science published in respected journals demanded the bulk of their attention. The nosode did not move in the same circles; homeopathic journals published and peer-reviewed with little oversight or interest from

³¹⁰ "Resource List," *VRAN* (Spring 2000), 32.

³¹¹ Patty Smith, "Do Homeopathic Vaccines Work," *VRAN* (Winter 1998): 1.

³¹² Vaccine Choice Canada *New Parent Guide* (Richmond: Vaccine Choice Canada, ca. 2012), 28.

³¹³ *New Parent Guide*, 30.

the scientific community. Unlike the infamous Wakefield paper of 1998 which appeared in *The Lancet* and was criticized relentlessly, the writings of Rona, Golden, Birch and Whatcott flew under the radar for years.³¹⁴ In 2012, however, the existence of nosode gained more prominence when the Natural Health Products Directorate (NHPD) began to consult stakeholders on adding a nosode monograph, allowing the registration of nosodes under a Natural Product Number. While they had already been included under several homeopathic monographs, the nosode monograph allowed for much bolder claims. In fact, the original nomenclature of the NHPD allowed for several of the nosodes to specifically include the word vaccine.³¹⁵

When the NHPD put the monograph up for comment, the *Winnipeg Skeptic* community took umbrage with the lack of evidence supporting nosodes. The community routinely offered comments on Health Canada's consultation for alternative medical practices, including on homeopathy two years before.³¹⁶ Most times, the skeptic community remained content to keep to themselves. With a so-called vaccine alternative potentially hitting the market, however, the group mobilized to an unprecedented extent. On July 6, 2012, Michael Kruse, a member of the Winnipeg skeptics, and Diana Sousa created the non-profit *Bad Science Watch*, take on "bad science in health product regulation."³¹⁷ Their first campaign targeted nosodes. In The STOP THE NOSODE campaign, which lasted from 2012-2015, Kruse and Sousa attempted to seize back the narrative of risk and choice. First, they set to work making the case against nosodes. *Bad Science Watch* collected information on the lack of evidence for nosodes and homeopathy generally, along with information on the use of nosodes. They documented Birch, Whatcott, and

³¹⁴ Example, Roniger H and Jacobs J. "Prophylaxis against Leptospirosis using a Nosode: Can this Large Cohort Study Serve as a Model for Future Replications" *Homeopathy* 99 no. 3 (2010):153-155.

³¹⁵ Dianne Sousa, Michael Kruse, and Christopher Jang. "Proposed Nosode Monograph," (Ottawa: NHPD, 2012), 12.

³¹⁶ Gem Newman, "The History of Homeopathy," *Winnipeg Skeptics* www.winnipegskeptics.com August 3, 2010.

³¹⁷ "Announcing Bad Science Watch," *Winnipeg Skeptics* www.winnipegskeptics.com. July 9 2012.

Golden's excursions to Canada pointing to their appeal as evidence that the nosode posed a health risk. Finally, they published an open submission to the NHPD on February 23, 2013 to serve as a blueprint for a media campaign.³¹⁸

The campaign, and the media interest it created, was counterproductive. On the one hand, the pronouncements of BSW demanded the de-registration of nosodes, denied the values of choice when evidence did not support it, and outlined the risks of nosodes forcefully. In the process, however, the national platforms exposed more Canadians than ever before to the idea of nosodes. On the other hand, newspaper articles often mentioned the risks of vaccines alongside the supposedly risk-free nosode. Moreover, the authors of these articles did little to argue against the discourse of choice. In effect, to the vaccine hesitant and to those who were questioning vaccines, this media coverage introduced a new choice and new doubts, spreading knowledge of nosodes to people who otherwise would never have encountered them.

In their submission to the NHPD monograph consultation, Sousa and Kruse drew upon the evidential base, advertising, and the concept of herd immunity to argue for the de-registration of nosodes. First, the authors note that there was only low-quality research relying on anecdotal evidence in support of nosodes. Even the basic concept of nosodes, lacked a theoretically plausible base. Second, as with many health products, the nosode included risk information. Troublingly, according to the authors, this information did not include a "specific warning" against using nosodes in place of vaccines and the influenza nosode could be labelled "influenza virus vaccine."³¹⁹ Taken together, they argued, the nosode monograph risked misleading

³¹⁸ Diana Sousa, Michael Kruse, and Christopher Jang, "NHPD Nosode Monograph Submission," *Bad Science Watch* <http://www.badsciencewatch.ca>, 4. AND "Proposed Nosode Monographs," (Ottawa: NHPD, 2012), 12.

"Treating Vaccine Damage," *Riverdale Homeopathy* September 1, 2013. www.riverdalehomeopathy.com "Vaccine Alternatives," *Riverdale Homeopathy*, August 31st, 2013. www.riverdalehomeopathy.com

³¹⁹ Sousa, "Nosode Submission." BSW

consumers into thinking that they were protected by nosodes leading to skipped immunizations and threatening herd immunity.³²⁰ At the same time, BSW did not mention the risks of vaccination. Since their concern was the lack of evidence of nosodes, the pronouncement of risk centred on the fact that nosodes did not work, while vaccines did. The unintended consequence was that they shifted the balance of risks towards vaccines.³²¹

The omission of vaccine side-effects was not replicated by the news media reports on the campaign who frequently mentioned the rare risks of vaccines. BSW hoped nosodes would be taken off the market, but the columnists who took up their cause remained unwilling to prioritize the risks of nosodes over the choices of consumers. Carly Weeks, a columnist for the *Globe and Mail*, represented a typical editorial response to BSW's call to action. Writing several articles between 2013 and 2015, Weeks approached the fight against nosodes under the prevailing paradigm of risk-education. Such an approach framed the article in a so-called unbiased presentation that examined the risks and rewards of nosodes, vaccines, and skipping vaccination altogether.

Her November 27, 2015 piece "The Alternative Take on Vaccines," Weeks attempted to downplay the risks of vaccines while restating the claims that nosodes are safe and side-effect free. She began by explaining that nosodes are "safer, more effective versions of traditional vaccines."³²² Next, she mentioned the claims of vaccine skeptics of "the dangers of traditional vaccines" while immediately debunking these claims and stating that of 8.3 million vaccine

³²⁰ Sousa, "Nosode Submission." *BSW*

³²¹ As Polzer, Cayen and Knabe's work shows, similar omissions of risk are common when constructing a hierarchy of choices. Because the HPV vaccine targeted women and cervical cancer, the fact that boys would be left at risk to infection to HPV, and the male cancers associated with the virus, was not highlighted.

³²² Carly Weeks, "The Alternative Take on Vaccines," *The Globe and Mail* November 27, 2015, L6.

doses only 23 serious reactions occurred.³²³ Unlike supporters of nosodes, Weeks insisted on pointing out that nosodes have no evidence to support them. She warned that nosodes were not approved “for the prevention of illness” and have “no evidence to support their use.”³²⁴

While this attempt to educate consumers was no-doubt welcomed by supporters of vaccination, vaccine skeptics could read an entirely different message. They could seize upon the existence of a side-effect free vaccine alternative, and instead of seeing the risk of vaccine side effects as low, the 23 cases of reactions serve to remind the parents that vaccine “can cause serious side-effects.”³²⁵

The strongest rebuke came from CBC’s *Marketplace*, a consumer watchdog show. On November 28, 2014 CBC aired *Vaccines: A Shot of Confusion*. *Marketplace* pointed out a lack of evidence about nosodes and refuted the claims of vaccine skeptics. Showing parents, a board, which featured vaccine myths, and asking parents to identify ones that troubled them (Figure 3.2), the narrator explained the lack of sound science behind the vaccine-autism link among others. In discussing the nosode, *Marketplace* interviewed Isaac Golden to talk about his research before bringing in Jason Bosa PhD., a doctor of research methodology, to analyze Golden’s research. Bosa called the quality “low” saying that “extraordinary claims” demand “extraordinary evidence and the evidence is not there.”³²⁶ Regardless CBC gave Golden a platform to tell parents to “look at the evidence” for themselves.³²⁷

Despite the well-intended message, Weeks, and the other health journalists across Canada declined to take a hard stance on nosodes, relying on readers to interpret the risks and benefits of

³²³ Weeks, “Alternative Take,” *Globe*, L6.

³²⁴ Weeks, “Alternative Take,” *Globe*, L6.

³²⁵ Weeks, “Alternative Take,” *Globe*, L6.

³²⁶ *Vaccines: A Shot of Confusion* (Toronto: CBC Marketplace, November 28, 2014).

³²⁷ *Vaccines: A Shot of Confusion* (Toronto: CBC Marketplace, November 28, 2014).

vaccines as they did. While none of the surveyed newspapers include articles in support of nosodes, the ability of parents to read risks differently meant that nosodes, which received an increased amount of attention during the two years campaign of *Bad Science Watch*, gained more attention than they otherwise would have. Alternative health magazines, lifestyle shows, and skeptics had an audience, but none had such a large audience as the *Globe and Mail* and the *National Post*. While *Vitality*, *Health Naturally*, and *Alive!* had a combined circulation of 300,000, the *Globe and Mail* and the *National Post* each boasted over a million subscribers.³²⁸ CBC's Marketplace had an estimated audience of 1.5 million in 2013.³²⁹

In the end, BSW was partially successful. In late 2015, Health Canada issued a directive that nosodes include a disclaimer "neither a vaccine nor an alternative to vaccination" on the label.³³⁰ As well, many provincial regulatory bodies made official statements that vaccines were outside the scope of homeopathic practice.³³¹ Nonetheless, nosodes remained on the shelves and homeopaths and naturopaths could and did privately advertise them as vaccine alternatives.

Across Canada, homeopaths continued to claim that claim nosodes were effective vaccine alternatives as recently as 2019. In Ontario, Riverdale Homeopathy's website still includes information on nosodes. In British Columbia, Little Mountain Homeopathy, Access Natural Healing, and Reviviscent Health likewise include information on nosodes as vaccine alternatives

³²⁸ "Daily Newspaper Circulation Canada, 2008-2015" *News Media Canada* www.nmc-mic.ca accessed November 2018.

³²⁹ "Television Ratings, Total Canada, Fall: 9/9/2013-12/8/2013," *Numeris* (January 2014).

³³⁰ Nicole Ireland, "Stronger Action Urged Against Homeopathic Products Touted as Alternatives to Vaccines," *CBC* (March 18, 2019). Accessed April 24, 2019.

³³¹ Nicole Ireland, "Stronger Action Urged Against Homeopathic Products Touted as Alternatives to Vaccines," *CBC* (March 18, 2019). Accessed April 24, 2019.

or homeopathic immunizations.³³² Even professional societies still tacitly approved of nosode use.

Despite their official denial of nosodes, the website of the Canadian Society of Ontario Homeopaths includes several research papers and articles about Golden, Birch, and homeoprophylaxis in their “Homeopathy in the news” section and the editorial board of the Canadian College of Homeopathic Medicine posted information embracing the use of nosodes.³³³

Meanwhile, vaccine proponents have abandoned their interest in nosodes. In the surveyed *Globe* and *Post* only one article after 2015 includes a reference to the nosode as “homeopathic immunization” and is primarily focused on anti-vaccine sentiments rather than nosodes themselves.³³⁴ The CBC published only two subsequent articles in 2016 and 2019, respectively.³³⁵

In the years following 1998, nosodes went from being a curiosity to becoming a staple in articles expressing vaccine skepticism. Along the way they buttressed arguments that parents

³³² “Evidence, Immunisation, and Treating Vaccine Damage,” *Riverdale Homeopathy* September 1, 2013. (Archived press release) www.riverdalehomeopathy.com accessed November 12, 2018. “Learn about Vaccine Alternatives, Kate Birch,” *Riverdale Homeopathy*, August 31st, 2013. (Archived press release) www.riverdalehomeopathy.com accessed November 12, 2018. Soyna McLeod, “About Homeopathic Nosodes/Homeoprophylaxis,” *Little Mountain Homeopathy*, (Archived informational post) www.littlemountainhomeopathy.com accessed November 21, 2018. “About the Clinic,” *Reviviscent Health* www.reviviscenthealth.com accessed January 5 2019. “How We Help,” *Access Natural Healing* www.accessnaturalhealing.com accessed March 3 2019.

³³³ “Homeopathy in the News,” *Canadian Society of Ontario Homeopaths* www.csoh.ca, accessed January 13, 2019. “Dear Globe and Mail,” *Canadian College of Homeopathic Medicine Journal* (online May 2013) accessed June 18, 2019. Have you Had your Flu Shot? There’s an Alternative,” *Canadian College of Homeopathic Medicine Journal* (online January 2013) accessed June 18, 2019.

³³⁴ Timothy Caulfield, “Stop those Naturopaths who Spread Anti-vaxxer Myths,” *The Globe and Mail* June 24, 2017, F7.

³³⁵ Nicole Ireland, “Stronger Action Urged Against Homeopathic Products Touted as Alternatives to Vaccines,” *CBC* (March 18, 2019). Accessed April 24, 2019. “Why this Infectious Disease Expert is Studying Nosodes,” *CBC* (October 9, 2016).

deserved the choice as to whether to take the risks of vaccinating their child, offering them an unproven middle road between natural immunity building and vaccination.

By 2016, nosodes went from being discussed in lists of other immune boosting strategies to becoming a topic that stood alone. The prominence of nosodes were bolstered by advocates such as Zoltan Rona, whose book offered multiple alternatives to vaccines. Whatcott's and Golden's work discussed nosodes as a single solution. Proponents' books appeared on Canadian anti-vaccine reading lists; they made public appearances and wrote articles that generated interest; and nosodes remained a staple on lists of vaccine alternatives. Nosodes created a new brand of vaccine skepticism that redirected it from a selfish choice to one of shared, while sometimes divergent, values with vaccine proponents.

Conclusion

The fortunes of homeopathy, nosodes, and anti-vaccination in Canada have had their ebbs and flows. But in the 1980s, the fortunes of all three were boosted by a renewed scepticism of mainstream medicine and, by extension, vaccines. All three practices were confined to a niche market in this period, but even limited interest was a reversal of fortunes. Only a few years earlier mainstream medicine had seemed likely to conquer all opposition. Now in 2019, vaccine hesitance is not merely a philosophical threat to Canadians. The past four years have seen increasing prevalence of measles. From 12 cases in 2016, measles has infected 113 Canadians from all regions in Canada, at the time of writing, December 2019.³³⁶ The history of nosodes is integral to a fuller understanding of the resurgence in vaccine resistance. As nosodes were successfully presented as direct replacements for vaccines, these treatments drew parents and their children away from vaccination.

The experience of nosodes is somewhat different than homeopathy and the anti-vaccine movement, however. Whereas the revival of homeopathy and anti-vaccine groups represented the concerted efforts of individuals, the revival of nosodes owes itself to the effort expended by the French homeopathic company, Boiron. Without its investment in research and education Canadian homeopathy would likely have remained insular and conservative. But, due to Boiron's investments, many Canadian homeopaths, and homeopathic consumers, eventually came around to the style of commercial homeopathy advanced by Boiron from 1985 onward. The 1998 Coulamy report provided a tool for Boiron to justify the use of nosodes and generated significant interest in Canada, eventually leading to the publication of articles in alternative health

³³⁶ *Measles and Rubella Weekly Monitoring Reports, November 24 to November 30, 2019*. (Ottawa: Health Canada, 2019).

magazines. Nosodes needed a strong, well resourced champion to have even a chance of succeeding within Canada. Boiron had that opportunity. This is not to say that the adoption of nosodes in Canada was absolute; there still exists resistance to nosodes, particularly in Quebec, where homeopathic education follows the earlier apprenticeship model.

After the 1998 Coulamy report, however, the energy in support of nosodes shifted. Once nosodes had broken into the homeopathic profession in English Canada, alternative health writers quickly set about educating consumers on their use in ways that far outstripped Boiron's efforts in Canada. Through their articles, homeopaths presented nosodes as risk-free from 1998-2006, then began stressing their effectiveness from 2006-2012. Finally, from 2012-2018, homeopaths advanced the idea that like vaccines, nosodes had the ability to protect others through the so-called morphogenetic field, a sort of homeopathic (re)imagining of a natural herd immunity. Both the Coulamy report in 1998 and Golden's PhD dissertation, also released in 1998, used opaque processes that has reduced the usefulness of their data. Nonetheless, studies provided a justification for the use of nosodes as vaccine alternatives.

Champions of nosodes benefitted from the absence of opposition to their use. Until 2013, no significant efforts were expended to refute these claims. Additionally, the STOP THE NOSODE campaign, while well-intentioned, suffered from an unclear communication of risks, leaving readers to interpret the relative risks of vaccines and nosodes for themselves. Ironically, as a result of this campaign, significantly more Canadians learned about nosodes. The alternative health publications which promoted nosodes had a circulation of most 300,000 subscribers. The mainstream publications that timidly challenged the use of nosodes -- *The Globe and Mail*, the

National Post, and the *CBC* -- all possessed audiences in excess of one million.³³⁷ By 2015, the once discarded tool of Canadian homeopaths was used openly, if contentiously, by Canadian homeopaths.³³⁸

Increasingly, scholarship points to the vaccine hesitant population rather than the truly anti-vaccine population as key to maintaining high immunization rates.³³⁹ However, these populations are, of course linked since it is the work of committed anti-vaccine activists that tips worried parents into hesitance. Nosodes represent a particular threat to vaccination programs. In the first place, purveyors of nosodes alternately have focussed on the similarities and differences of nosodes and vaccines; nosodes are alternately referred to as alternatives to vaccines and as alternative vaccines. As a result, parents may believe that nosodes provide the same immunity as vaccine (perhaps even responding to surveys saying that they have vaccinated their children). However, those who use nosodes represent a group of the truly vaccine *hesitant*. The use of a vaccine alternative that is aimed at providing immunity to childhood diseases indicates that these parents *are* concerned about vaccine preventable diseases. It remains plausible then, that they can be coaxed to use vaccines to protect their children.

One of the goals of this research is to argue that the anti-vaccine movement is more than just people. Nosodes and other so-called vaccines alternatives are tools of the anti-vaccine movement that have allowed allow for new rhetorical strategies. But, unlike beliefs, which are hard to change, nosodes and other vaccine alternatives can be regulated by governments.

³³⁷ Circulation data was found on the covers of *Vitality* magazine and on the inside cover of *Alive!* and *Health Naturally*.

³³⁸ “Daily Newspaper Circulation Canada, 2008-2015” News Media Canada www.nmc-mic.ca accessed November 2018.

³³⁹ See MacDougall and Monnais, “Vaccinating in the age of Apathy”; this term also defuses some of the harsh judgements that are aimed at those who truly reject vaccines. In contrast, the vaccine hesitant may have under immunized children who are missing only some vaccines or have had their vaccines delayed temporarily.

Suppressing these tools denies the use of these new strategies to anti-vaccine agitators.

Policymakers need to pay more attention to these technologies and their response to them. If action had been taken earlier, nosodes need never have gained a foothold in Canada.

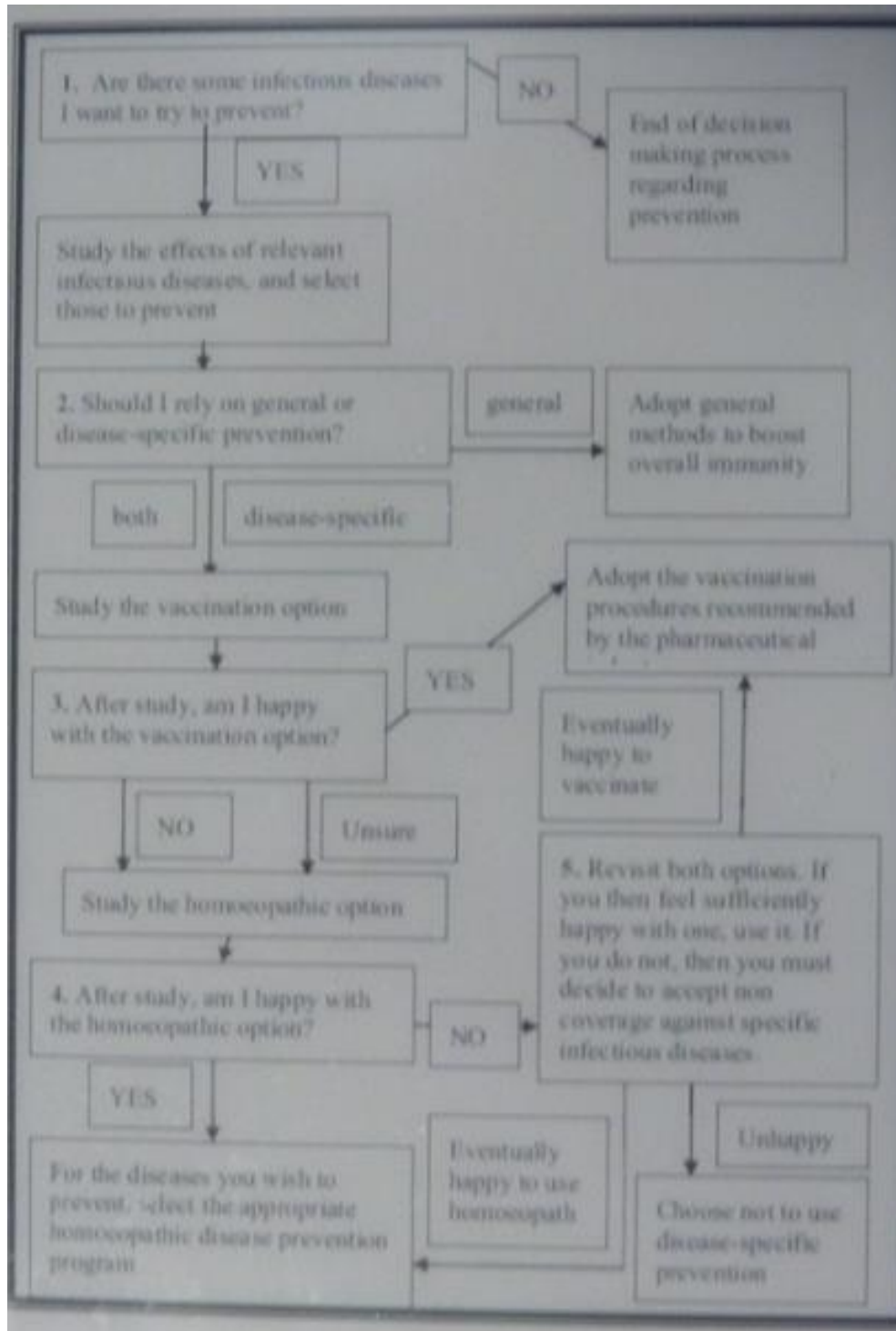
My work on nosodes opens more avenues of research. The history of homeopathic manufacturing and advertising, particularly the story of Boiron's operations within Canada deserve more attention. While sociologist Michael Joiner has researched the French experience of Boiron's commercial efforts, the history of a French company operating from within a French province opens the opportunity to explore both the history of natural pharmaceuticals from a transnational lens and add to the exploration of French corporate efforts after World War II.

Likewise, the history of homeopathic education is fertile ground for historians. Looking at the ways in which homeopathic education in Quebec and English-speaking provinces has differed historically could tell us much about perceptions of both mainstream and alternative medicine.

The history of nosodes in Canada exposes a fragile tool of the anti-vaccine movement. Their success testifies to the fact that vaccines have caused anxiety for many parents. The promise of risk-free protection was popular precisely because it addressed the fear of vaccine preventable disease along with the fears that protection may come with side effects.

Appendix 1: Title

Flow Chart



Isaac Golden, “Decision Flow Chart”, in *Vaccination and Homeoprophylaxis: A Review of the Risks and Alternatives* (Gisborne: Isaac Golden Publication, 2010), 36.

Homeoprophylaxis

Homeoprophylaxis				
Measures of Reactions & Efficacy Data After Follow-Up Surveys	Data Series			
	Series 1-5	Series 6-10	Series 11-15	Totals
Total Responses	708	817	817	2342
1. Previously vaccinated	73 10.3%	102 12.5%	110 13.5%	285 12.2%
2. Definite reactions to remedies	51	81	81	213
Reactions per person	7.2%	9.9%	9.9%	9.1%
Reactions per dose (est.)	1.2%	1.7%	1.7%	1.5%
3. Definitely suffered from diseases covered by main program (a measure of failure)	18 2.5%	11 1.3%	11 1.4%	40 1.7%
4. Definitely exposed to diseases covered by main program	177 25.0%	127 15.5%	113 13.8%	417 17.8%
5. Definitely suffering diseases, after definite exposure and after taking the appropriate remedy (a measure of failure)	18/177 10.2%	11/127 8.7%	11/113 9.7%	40/417 9.6%
6. Definitely not suffering diseases, after definite exposure and after taking appropriate remedy (a measure of success)	159/177 89.8%	116/127 91.3%	102/113 90.3%	377/417 90.4%

Isaac Golden, “Homeoprophylaxis”, in *Vaccination and Homeoprophylaxis: A Review of the Risks and Alternatives* (Gisborne: Isaac Golden Publication, 2010), 89.

Table of Health Markers

Condition	Measurement	All Diagnoses		GP Diagnoses	
		HP only	Vaccination only	HP only	Vaccination Only
Asthma	Odds Ratio	0.117	1.75	0.124	1.89
	Chi Test P	0.0004	0.0025	0.0006	0.0007
Eczema	Odds Ratio	0.382	1.315	0.239	1.76
	Chi Test P	0.0146	0.121	0.0097	0.006
Ear/Hearing	Odds Ratio	0.917	1.149	0.703	1.517
	Chi Test P	0.792	0.459	0.364	0.04
Allergies	Odds Ratio	0.550	1.220	0.307	1.518
	Chi Test P	0.074	0.239	0.038	0.061
Behaviour	Odds Ratio	0.446	0.869	0.541	0.784
	Chi Test P	0.170	0.593	0.055	0.613

Isaac Golden, “Table 5-0-1 Comparative Safety of Vaccination and Homeoprophylaxis,” *Vaccination and Homeoprophylaxis: A Review of the Risks and Alternatives* (Gisborne: Isaac Golden Publication, 2010), 151.

Table of Efficacy Rates

Table 4-9 National Attack Rates and the Efficacy of HP

Disease	Attack Rate, Unimmunised %	Attack Rate, HP %	Efficacy of HP %
Whooping Cough	85.0	11.7	86.2
Measles	90.0	9.0	90.0
Mumps	70.0	5.9	91.6

Isaac Golden, "Table 4-9 National Attack Rates and the efficacy of HP," *Vaccination and Homeoprophylaxis: A Review of the Risks and Alternatives* (Gisborne: Isaac Golden Publication, 2010), 75.

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